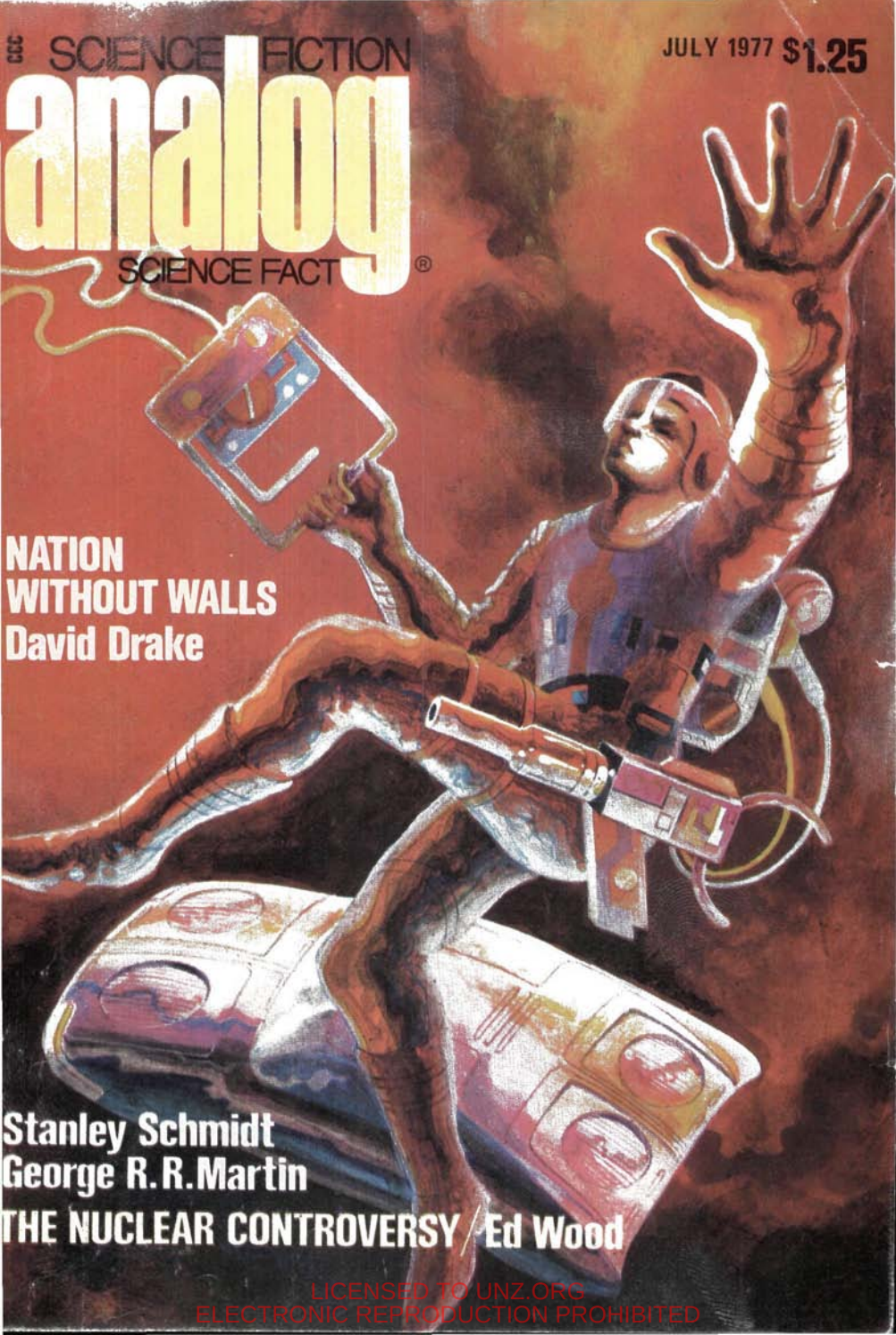

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— *Eldon Tannish*, TSG 4

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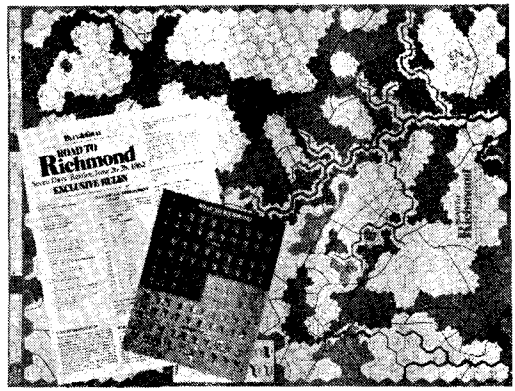

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an open letter

editorial

President Jimmy Carter
The White House

Dear Mr. President:

Since the temporary Arab oil embargo of 1973-74, the people of the United States have been facing an energy crisis. The very harsh winter of 1976-77, and the resulting shortages of natural gas, accentuated the problem.

The response of your predecessors has been less than satisfactory. The energy program you outlined to the Nation in April is a good beginning, stressing conservation and calling for equitable sacrifices from all segments of American society. But much more needs to be done.

Shortly after taking office, you ordered that the lights be turned off at night at several national monuments in the District of Columbia, as a demonstration of your Administration's determination to conserve energy resources. The sight of the Lincoln Memorial or Washington Monument deep in darkness is indeed a sober reminder that energy conservation is vitally necessary to our national well-being.

Perhaps it might be possible, however, to use these national monuments to create a new kind of symbol; a symbol that will have a positive effect on the attitude of the whole world's peoples toward the energy crisis.

Why not turn the lights back on, at each of these cherished monuments—with self-sufficient energy systems

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that do not require fossil fuels? Light up the Washington Monument with electricity generated from a solar energy array. Rekindle the lights in the Lincoln Memorial with windmill-powered electricity. Use SNAP type nuclear reactor systems, of the kind that have been used for more than a decade at our Antarctic Research stations, to light up the Jefferson Memorial or the Iwo Jima statue that honors the Marine Corps.

By "turning on the lights again" you will be dramatizing—for the whole world to see—that America has the technology *and the will* to solve the problems created by shortages of fossil fuels.

Moreover, you will be demonstrating to American taxpayers, and to American industry, that alternative technologies exist today; technologies that can yield the energy we need cleanly, safely, and without using fossil fuels. This would help to create a demand by American consumers for such alternative energy technologies. It will encourage industry—especially small, new business enterprises—to meet that demand.

The fundamental roadblock in our thinking about the energy crisis is that we seem to be asking the wolves to guard the sheep. The basic problem is that petroleum and natural gas supplies are dwindling rapidly. Yet we expect the petroleum and natural gas corporations to solve the problem. In fact, they are the *cause* of the problem, to a considerable extent.

Since the 1950s, the petroleum companies have decided—quite cold-bloodedly—not to build new oil refineries in the United States at a rate sufficient to meet the increasing domestic demands for refined petroleum products. New refineries are very expensive to build. The oil companies decided not to make the necessary capital investments; rather, they preferred to allow the cost of petroleum products to rise. Not only did this save them capital outlays, it swelled their profits enormously.

Meanwhile, the suppliers of natural gas were urging Americans to switch to their product for heating their homes and businesses—even though it was well known in the industry *and in Government* that natural gas was the scarcest of all our fossil fuels. Nonetheless, an intensive national advertising and promotional campaign convinced millions of American homeowners and businessmen to convert their heating facilities to natural gas. The result, this past winter, was that whole states were paralyzed when there was not enough gas available to run factories and heat homes. Unemployment soared, production sank and people actually died in the cold.

What was good business sense for the oil and gas companies was bad economics and terrible inhumanity for the nation as a whole.

Yet today, our national energy policy (or nonpolicy, so far) has been to turn to the "energy companies" for the answers.

Their answer? Pay more for oil and

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gas, deregulate price controls, give them a free hand to dig wherever they want to for new wells, and in general just allow them to control the entire situation.

Look at their latest advertisements in the press and on television. They all make a polite bow toward solar energy, to prove that they are forward-looking, and then quite calmly say that solar energy will not be able to help us until far into some dimly-perceived future.

This is simply not true.

Solar energy, wind power, and other new energy technologies such as hydrogen fuels can help to correct our energy shortages *now*.

That is why a demonstration of these new technologies, in the form of "relighting" the national monuments, can be so important. If we can light the Washington monument with solar energy, can the oil companies continue to blandly tell us that solar energy is decades away from practicality? If electricity generated from wind power turns on the lights at the Lincoln Memorial, how long will it be before American homeowners begin shopping for windmills? And if we can use nuclear energy to bring other monuments out of the dark, won't the American people begin to understand that the fears of nuclear energy that have been whipped up over the past years are exaggerated?

As a former nuclear engineer yourself, you must certainly be aware of the hysteria and distortions of information surrounding the nuclear power industry. In large part this bad scene has been brought on by the nuclear power people themselves, who for many years smugly insisted that nuclear safety was their business, and none of ours.

As President, you have the opportunity to show the people that nuclear energy is as safe—and in some ways safer—than fossil fuels.

Elsewhere in this issue of Analog is an article that discusses the problems of nuclear safety. But here let me quote some of the statements made in the press on the subject.

The Canadian newspaper supplement "Weekend" recently ran a lengthy article on nuclear powerplant accidents. It began, "On Dec. 12, 1952, Canada's experimental NRX reactor at Chalk River went out of control. No one was hurt, but the reactor core was destroyed." A few paragraphs later, "On Oct. 5, 1966, the Fermi experimental breeder reactor at Lagoona Beach, Mich., suffered a partial reactor meltdown and *came within an ace* of turning into a nuclear 'runaway'." (Italics added.)

Later on, the article tells of an accident "that nearly caused a catastrophic meltdown" of the Brown's Ferry nuclear plant in Alabama. And so on. Words such as "nearly" are buried under the sensationalism of words like "catastrophic meltdown."

Here at Analog, our magazine is printed by Rumford Press in New Hampshire. While other Condé Nast magazines such as Vogue and Glamour almost missed their February and

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March issues because their printers in Ohio were forced to shut down because of the natural gas "freeze-out" last January, Analog had no such problems. Much of New England's electrical power is supplied by nuclear powerplants. Winters are severe in New Hampshire, but the uranium-fueled powerplants worked just fine.

Of course, neither nuclear energy, nor solar, nor any of the new technologies that are now available will solve the energy crisis alone. We need a combination of many new technologies to handle our pressing energy needs. But more than that, we need the drive, the dedication, the leadership that only the President of the United States can provide.

When our nation was in near-panic because of Sputnik and subsequent Soviet space successes, President John F. Kennedy focused our entire national will on an effort to reach the Moon. Once we decided to do that job, we did it so well and so quickly that the Russians dropped out of the space competition entirely and tried to convince the world that they had never been in competition with us anyway.

You, President Carter, have the opportunity to lead the American people on a similar, and far more important, mission. Lighting up the monuments in the District of Columbia is only a first, symbolic, step.

By harnessing the will and the energy of the American people, we can light the whole world.

THE EDITOR

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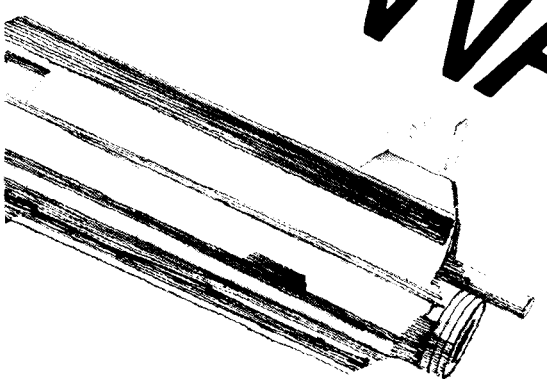
Policemen enforce the law. Who enforces justice?

David Drake

NATION WITHOUT WALLS



The blast echoed much farther and faster than sound waves alone could have.

Level 17 was built to State Standard Floorplan, a sixty-meter circle crammed with almost five hundred desks. The computer was guided by psychiatric profiles and performance analyses to the same instant decision a human director would have made by gut reaction: Lacey's mastoid implant rang him to alert.

This one was too big to be dropped.

"Ready," Lacey said by reflex, swinging away the counterweighted scanner helmet under which he had been hunched at his desk. He was a squat man and as grim as a wolf, dark except for a jagged scar from his right ear to his collarbone. His expression was that of a hunter who had seen much of the world and found little humor in it. Over his net jumpsuit he wore a jacket, opaque and slightly unfashionable; it flared to hide the needle stunner holstered high on his right hip.

"Bomb explosion in the Follard Tower," said the voice behind Lacey's jawbone. "A car and driver are assigned to you. There are currently three dead." After a pause that would have been meaningful in a human, the computer added, "One of the dead has been identified as Loysius Follard."

Lacey was already moving in a

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quick shuffle that took him around other U-shaped desks and their occupants, men and women sexless under their enveloping scanner helmets or staring bland-eyed beyond the circular confines of the room. A few chatted low-voiced with their neighbors. Few took notice of Lacey's haste: to these investigators, "private" business was no more interesting than naked skin to a Turkish bath attendant.

Over the door to the pad a light panel was flashing the number of the car assigned to Lacey. He ignored the six-digit display, knowing that on a priority run the car would already be swinging toward the doorway to pick him up.

It was, lift fans shrieking as it hopped a row of stationary vehicles to get to him. The driver was a blob of orange in a crash suit, loose fabric that would inflate at a 10-g impact, and a polarized face shield. The passenger compartment behind him was an open box with low bulkheads, a bench, and a scanner helmet for the occupant. The vehicle's own single camera was on a meter-high pole above the nose, a vantage that caught both driver and passenger and was legally adequate so long as they faced it. When grounded they would be in the field of other scanners.

Lacey leaped aboard, slapping the driver on the shoulder as he hit the seat. The car's quick acceleration urged the agent back as, helmet already settled over him, he willed an upward twitch of his ring finger. The nerve had been cut and rerouted to trigger his implant for his commands to the Crime Service data net.

"Explosion site," Lacey directed. On his helmet screen he saw smoke eddying in what had been a ten-meter cubicle—before the explosion had blown out the two partitions separating it from the greater office of which it had been one corner. Two of the dead were victims of a wall fragment which had cartwheeled through the banks of desks in the main office. The third corpse lay across the cubicle's own gleaming console of polished mahogany. Incredibly, the dead man had been the only occupant of the smaller room despite the fact that it had the full complement of three scanning cameras and the heavy tax burden that went with them. Lacey realized why the computer had singled out the third man. "Loysius Follard," he told his implant, "economic highlights."

Instead of an immediate answer, the link made a faint clicking noise like lock tumblers clearing and asked, "Access code, please."

"Access code" to the computer because Lacey had just requested information proscribed even to Crime Service personnel unless they had a particular need. The data were available in a special bank, probably that of the Security Police, to which outside access was rigidly controlled. And the computer had added "Please" because it is easier to program in politeness than it is to defend its absence to people of the stature that sometimes queried the Sepo net.

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Blocks like that were unusual, though Lacey had suspected power when he saw Follard's office. Flipping the helmet away from his eyes, Lacey punched his code, B-D-Q, M-E-Z, O-P, on the plate built into the driver's seat back. It was the one portion of the car deliberately hidden from the scanner, just as desk code plates were shrouded from room cameras—one secret in a State dedicated to eradication of all others.

Another faint clicking. Then, "Loysius Follard, controls Kongo Holding Corporation, controls—"

"Cancel," Lacey said. Kongo Holding was, for all practical purposes, the nation of Argentina. He had hoped knowledge of the primary victim's business would be a line on the assassin. But a businessman of Follard's eminence invited, literally, all of Earth's seventeen billion people as potential enemies.

It also explained why economic data were on the Sepo list. The omnipresent scanners recorded every act and cut through the sham of straw men and proxy voting. Even a man of Follard's power could not avoid them, but he could arrange that availability of the data be sharply restricted. There would always be friends, contacts, favors. The Thirty-first Amendment and the Open Truth Act implementing it had not been what many saw them to be, an abandonment of the fight for individual privacy against the flood of technological intrusion. Rather, they were an attempt to utilize and control the information-gathering which eighty years of unsuccessful prohibition had proved to be an ineradicable part of American life. When everything became open to a few, much could be forbidden to the generality.

Lacey dropped the helmet over his eyes again. His blocky face was tightening with concentration and the scar had tensed to a line of white fire. On the internal screen appeared the private office at the moment of explosion, images recorded by the scanning cameras and recalled for Lacey from the huge electronic vaults beneath Atlanta. Follard was sprawled across the smooth intarsia of his desk top. His eyes were open and the lighter skin of his right palm was visible through his half-clenched fingers. The bubble of flame which wrecked the room burst from a ventilator duct just as the louvers began to quiver to signal that the fan had switched on.

Lacey requested the scanner on outer wall, three minutes before the explosion. Follard was slumped even then, a message capsule visible beneath his shoulder from the new angle.

"Give me the third scanner," Lacey said, "explosion minus four." The camera behind Follard's desk should have displayed the capsule's contents when it was opened; instead there was nothing. The camera was out of order, had been out of order minutes before the blast might have damaged it. No object is eternal, but scanning cameras were Man's nearest present approach to that ideal. Lacey switched

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to the first scanner and a sight of Follard speaking a quick affirmative into a wall microphone—sound simulacra could be developed by the net, but no investigator of Lacey's experience needed them when the subjects' lips were visible. The desk top burped the thin 10-cm square container, examined in the bowels of the Tower for concealed dangers after a courier service had delivered it. Follard touched the tab of the stiff foil capsule with his signet. The radioactive key within the ring caused the tab to roll back without incinerating the contents, as any other means of opening would have done. Then Follard collapsed across his desk.

Lacey's face spread in a grin that bared his prominent eyeteeth. "Technical request," he directed his implant. "I want a desk printout on lethal gases, instantly fatal and explosive in low concentration."

"Define 'low concentration'," croaked the computer link.

"Bloody hell!" Lacey spat, then considered. "However much an unreinforced 50cc message capsule could hold, distributed in a . . . twenty-five cubic meter office."

The driver's hand touched Lacey's forearm. "Sir, we've got the site—but there's a Sepo on the pad and—"

Lacey cocked up the scanner helmet, glaring past the half-turned driver to the roof pad of the Follard Tower. The massive block of concrete and vitril was of standard design, a landing pad on the roof for the top executives—those with aircars—and fifteen floors beneath linked by open stairs. Rank among chiefs would go with altitude, an inversion of that among the lower orders who entered at ground level and climbed stairs to their desks. Follard's top-floor window gaped emptily instead of reflecting light off a polarized surface. Seven private cars with closed cabins and luxurious appointments were ranked about the open stairhead. There, one hand on the stair rail and the other holding a modulated-laser communicator, stood a drab, weedy man who had pulled the blue skullcap of the Security Police from his pocket to assert his authority.

Three news-company cars were in sight but keeping a respectful five hundred meter distance from the Sepo. Lacey snorted, knowing that if only Crime Service had been present the reporters would have been swarming over the site. He had once knocked a pair of them down with his stunner when they ignored his demand to keep clear. The microscopic needles and their nerve-scrambling charges had done no permanent harm to the newsmen, but Lacey had been threatened with the Psycomp if he ever did it again. It was surprising that the Sepos were already at the scene. It was almost as if—

The security man raised his communicator and aimed it at the pickup cone on the nose of Lacey's car. The microphone shroud covered the Sepo's lips and the beam itself had too little scatter to be intercepted. The message rumbled out of the car's loudspeaker

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perfectly audibly: "Shear off, you! This area is under Security control."

The vehicle hesitated in the air, ten meters from the Sepo and slightly above him. The driver was balancing his fans as best he could, but the frail craft still wobbled as Lacey leaned forward with no attempt at secrecy and shouted, "Keep your pants on, friend, I'm from Crime Service and a murder site damned well isn't closed to me."

The Sepo lowered the communicator from his convulsing face and snarled, "I said shear off, bead brain! Don't you know what 'Security' means?"

"Set me down," said Lacey tightly to his driver. His face was gray and dreadful. Without hesitation the driver canted forward his twin joy sticks. The Sepo's communicator fell as his right hand slashed down to his belt holster. Lacey's driver tramped the foot feed, sending the car howling straight at the blue skullcap. The Sepo shouted and ducked as the screaming lift fans plucked away a bit of his jacket which billowed into their arc. The car hit the pad. It bounced from excess velocity but Lacey had timed the impact to leap clear at the instant steel scraped concrete. The Sepo was on his knees, scrabbling for the weapon he had dropped. Lacey took a half step forward and kicked. The gun was a silvery glitter that spun far over the roof edge and away.

"Oh dear Lord," the security man blurted, sitting back and in his nervousness wiping his face with his skullcap. "If some civilian g-gets that—don't you know what it was? That was a powergun!"

"No it wasn't, friend," said Lacey, satisfaction beginning to melt his face back into human lines. "Powerguns are approved for military use in war zones; not for police, not even for Sepos. And I sort of doubt that anybody's going to use your toy after it falls thirty meters, anyway." Then, with the same precision as before, Lacey's toe caught the Sepo in the temple.

The stairs were open-work which scarcely interfered with the cameras in the big room below. The three hundred workers, mostly clerks and minor supervisors, were crowded into the western half of it while two technicians and the Tower's medical unit worked hastily on the score of living casualties. The line of demarcation was not chance but another blue-capped Sepo whose nervousness evaporated when he saw Lacey and mistook him for a superior in the same organization. "I'm Agent Siemans, sir," he announced with a flat-handed salute. "Kadel and I took over right away and kept everybody off the—him."

Sieman's gesture indicated the desk and body visible through the torn partition. Lacey nodded crisply, quite certain that "everybody" in the Sepo's mind had included Crime Service investigators too. Sieman's cross-draw holster was visible through his unclipped jacket. It held a fat-barreled powergun.

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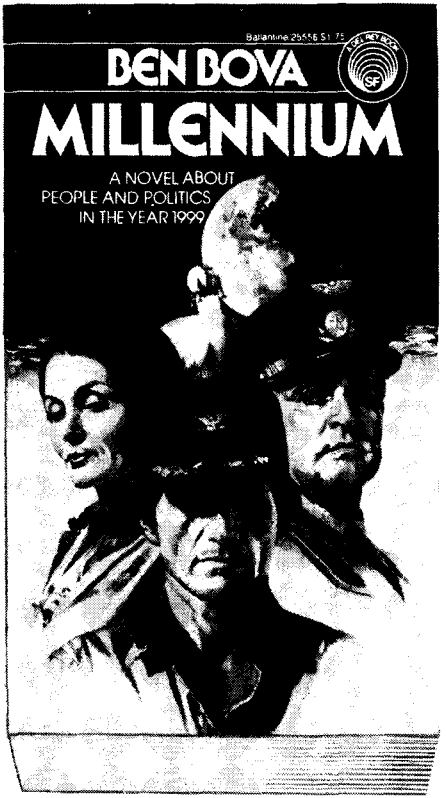

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Lacey quickly covered the private office with his hand scanner. The blast had seared everything in it so that the synthetic fibers of Follard's suit had shrunk over his limbs and left the uncovered skin of his face and hands crinkled. The routing slip on the message capsule was clear, however, protected by the body which had fallen across it. Lacey flicked it upright to record the sender-recipient information. The name of the former—Lyall Mitchelsen, within Richmond Subregion—meant nothing to Lacey. Presumably it had meant a great deal to Follard or the magnate would not have opened the message out of sight of even his personal staff.

Out of sight of the scanning cameras, too—but that had to be a chance malfunction.

● *Edward Wood*

Inspired as a boy by reading science fiction, Ed Wood undertook a career in science. He secured master's degrees in nuclear chemistry and in nuclear physics. Until recently, he was engaged in the day-to-day design, testing, and working-out-the-bugs of nuclear power plants.

In the nonworking hours, Ed continues the science fiction activity that has made him a famous fan since he was teenager. A member of the committees of several world science fiction conventions, he was blessed with perhaps the second loudest voice in fandom, and for many years was the premier auctioneer who helped raise funds at world conventions.

With several other fans, Ed founded Advent Books, a publishing company devoted to bringing out scholarly-but-interesting works on science fiction usually only issued by a university press. His last move of household several years ago brought him, his wife, young son, and ten tons of books from northern California to Hartford, Connecticut. Here, his free time is occupied with writing, editing, and consulting in the field of science fiction. Ed is a natural resource for other editors, anthologists, and scholars seeking source material or a research collaborator.

In his twin fields of nuclear power generation and science fiction, Ed is a fearsome opponent in a debate. He won't try to overpower you with his voice, but will surely pin you to the ground with facts, figures, and a mind that sticks to the rigorous application of the scientific method whether the issue at hand is physics or literature.

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Heavy shoes clattered behind Lacey. As he turned, a savage voice cried, "Freeze!" Though his scar again began to flame, Lacey managed a quizzical smirk as he turned his head toward the newcomers. Two of them were big men capped with Sepo blue, crouching over automatic powerguns. The third, stepping daintily across a flattened wall-panel, was slim and wore a suit of glittering gold cloth. The smooth pallor of his skin made it impossible to tell whether his hair was white or blond. Skin like that meant wealth as often as it did youth, and the slim man radiated wealth.

There was another aura surrounding him: he was unarmed, but he was deadly in a way neither of the gunmen flanking him could equal.

"Good morning, Field Agent Lacey," he said with a smile. His delicate fingers—the nails matched perfectly the sheen and color of his wrist-to-ankle suit—raised the needle gun far enough from Lacey's holster to be sure it was no more than it seemed, then slid it back disdainfully. "I am Sig Hanse, Agent Lacey. I am of the Security Police."

Hanse's tone, his smile, both implied a great deal more than the words alone said.

"You're in the presence of a major Security offense," Lacey said. At Hanse's quick blink he added, "Lethal weapons in nonmilitary hands."

The Sepo's fingers trembled. "Get out of here, Lacey," he said softly. "You've been recalled. This isn't a wife stabbing, a drunk with a chair-leg bludgeon. It's a Security matter; and if you aren't too stupid to grasp this concept, try to realize that you aren't cleared at a high enough level to be told exactly why. I might add that there is now a Security block over all the records of this crime. No data will be released without my code—just to remind you of your duty to the State."

"I can be expected to do my duty under the Constitution and the Code, Citizen Hanse," Lacey said. He took an easy, unconcerned step between the two gunmen and then glanced back at their leader. "And you? The powerguns?"

"A needle can bounce from a stud, can fail to discharge when it hits—can just not stun a man instantly unless it gets a ganglion," Hanse snapped. "Our targets are too dangerous—to the State!—to risk that."

"Good hunting," Lacey murmured as he walked out of the room. His shoes whispering on the stair treads was the only other sound he made. His eyes were as empty as those of the Sepo who now lay among the blast casualties. The technicians and their computer worked to repair the man's skull, fractured by Lacey's foot.

Two new vehicles squatted on the roof: an open car like Lacey's with a blue-capped Sepo on the driver's saddle, and an older but luxurious closed car of a quality equal to that of the private ones already parked there. Lacey jerked a thumb at the Sepo. "Hanse says take your car down and block the front entrance, friend."

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The Sepo blinked. "Hey, but how about the roof?" he demanded.

Lacey climbed into his own car. "Well, what about it?" he mimicked. "He's your bleeding boss—you go *grill him about it.*"

The Sepo grunted as though punched in the stomach. He booted his fans to life and sailed over the parapet as soon as their double whine had begun to lift the car. "Hold it," Lacey said to his own driver. He jumped back out and crossed to the superb car beside it. Hanse's vehicle seated three. There were no loose objects within the cabin. Its design was unusual for a police vehicle in that the scanner helmet was pivoted for use only by the front seat passenger, not for the one on the soft leather bench on which Hanse himself surely rode. That was ostentation of a sort which Lacey, who viewed the helmet as a tool and not a symbol of punishing drudgery, honestly could not understand.

There was a code panel, too, built flush with the seat back. Lacey's hand scanner recorded the banks of letters from several angles. Then he swung quickly back aboard his own assigned craft.

"What're your orders, anyway?" he asked his driver's back.

"Just to remain at your disposal, sir. This was a first priority call."

"Bleeding right it is," Lacey said. He tried to blank the rage from his voice before he added, "Look, find an empty pad somewhere—an office building too run down to get air traffic, something like that. Set down there and let me think."

As the car rose smoothly, Lacey said to his implant, "Run me life stats on Lyall Mitchelsen, Richmond Subregion."

There was a pause, followed by a crunch of static and a metallic voice stating, "The information you have requested is under Security block. Please punch your access code."

"Cancel," Lacey said so sharply that the syllables clicked. He paused a moment, then said, "Technical request."

"Ready," replied the implant.

"I ran a code board on my hand scanner two minutes ago. Retrieve that and analyze the buttons for wear patterns by group." Using the alphabet rather than Arabic numerals gave more than 2×10^{11} possibilities in an eight-digit figure, hopelessly beyond the realm of chance discovery; however, the buttons would wear with use. If the board was used only by one man, that left sixty-four combinations to eliminate. Assuming, of course, that the Technical Section had not been programmed to alert Security when a request like Lacey's was received. It was the first time Lacey had tried to break a Security code, but he had gotten where he was by his total unwillingness to stop when he had started something. He wasn't going to back off now.

"Degree of wear is as follows. First group, S. Second group, A-E-G-H-I-N. Third group, remaining buttons, with no significant wear."

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"Now—," Lacey began. He planned to set up a dummy query through the CS net to insulate his identity from Security when he began running his potentially sixty-three incorrect access codes. The pattern of the seven letters—S doubled—struck him suddenly. Barking a laugh of vicious triumph, he keyed his implant and repeated, "Run me life stats on Lyall Mitchelsen, Richmond Subregion."

Crunch. "The information you have requested is under Security block. Please punch your access code."

Lacey's index finger picked out S-I-G-H-A-N-S-E. It would not have been ease of recall that possessed the Sepo to pick that code—no one with trouble remembering eight letters would have risen to Hanse's level. But it could well have been the silent joke of arrogance between Hanse and the computer, proving that he, alone among the .8 billion people of Southern Region, the State-ruling Sun Belt, had not lost his identity.

"Lyall Mitchelsen, fifty-six, industrialist, murdered 4-28-02 in Greater—"

Yesterday. "Method of murder?"

"Aircar crash. Controls locked at 500 meters when a rogue circuit was triggered by a tight-beam radio signal."

"Bleeding martyrs! How did a circuit like that get into Mitchelsen's car?"

"The circuit was designed into all '01 and '02 Phaeton Specials. Investigation has as yet failed to identify the member of the design team actually responsible. There is an increasing possibility that it was somehow imported from beyond the team."

The computer had halted, but it added as a seeming afterthought, "The murder technique was discovered through analysis of seven identical accidents yesterday within a twenty-one-minute period. The other victims were . . ."

With the scanner helmet down, using it and his implant simultaneously, Lacey was oblivious to his external surroundings and continued to run his data. The Security computer had already linked eighteen assassinations in the Southern Region during the past day and a half, Follard's being the most recent of them. Aside from their style of death, the only known factor unifying all eighteen was their enormous private power. None had been in government directly—bureaucrats and elected officials both could be scanned at public booths by any citizen at any time—but the wealth of these men and women had given them influence beyond that of all but a handful of those in open authority. Their lives were open to licensed reporters, but reporters—or their superiors—could be swayed by pressure unless an incident was too striking to ignore.

And of course, even the most powerful of men could be scanned from all angles by investigators like Lacey, except when a camera went out.

"Give me office scanner repair records for all victims," Lacey de-

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manded with a nonflick of his ring finger.

"The information you have requested is under Security block. Please punch your access code."

Lacey paused, shocked for the first time in the investigation. That the Security terminal had again come on the line meant that the data was covered by a block not associated with the assassinations. This would have seemed absurd, had he not already begun to realize that Security—at least for the Southern Region—had been involved in something very strange which the deaths had begun to make public. Lacey lifted his helmet in order to punch the unfamiliar letters of Hanse's name. He caught the eyes of his driver on him.

"Bleeding idiots!" Lacey screamed. "They know I can't work with women!" He fell back against his seat, his body trembling and his complexion a sudden yellow-green. She had touched him, hadn't she? Though her sexlessness beneath crash suit and mirrored visor had kept the act from immediate impact, memory now sifted nausea through Lacey's body. He leaned over the side of the halted car. After a minute he got his blurring vision focused on the asphalt of the landing pad without having had to vomit first.

"Will you please put your visor down?" Lacey asked in a small voice. A thump indicated that he had been obeyed. It had been an attractive face in many ways, high cheekbones and blue eyes framed by jet hair. His mind still superimposed it on the hard plastic of the helmet.

"Why?" the driver asked. Her throaty voice was slightly camouflaged by the shield, but Lacey could no longer understand how he had imagined it to be masculine.

He turned to the now-blank visor. "I want you out of the car, please. I'll have them send another with a male driver and you can switch with him."

"No, I'm your driver and the people who determined that won't be overruled," she said calmly. "But why does it matter?"

"Why?" whispered Lacey, his face as hard as a headsman's ax. "Because my brain got wet-scrubbed, friend. Because I was frozen in a nutrient bath for three months while a Psycomp made sure that I never raped another woman. Never willingly touched another woman, as a matter of fact, though that may have been a little farther than the computer meant to go." He had the trembling of his hands under control and the bright sun was baking the sweat off his face now.

The driver considered him silently. After a moment she said, "I'm the best in your section, you know. I can do things with a car that none of the others can. Or would try to."

"You dropped us on the Sepo like you were reading my mind," Lacey agreed. "But I still don't want to share a car with you."

"Look, you don't have to touch me, you know." There was an odd tension in her voice, a need that went beyond

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anything the situation seemed to call for. "Can you work with a driver who drives and who takes orders like nobody else you'll find?"

He looked away, up at a sky that had become blue and pleasant again. Belatedly he punched Hanse's access code. "Do you have a name," he asked, "or do I just call you Fireball?"

"You can call me anything you please," the girl said quietly, "but my name is Tamara Damien."

The data began to fire out of Lacey's implant and he let it carry him out of his personal situation. Of the fifty-four cameras in the victims' offices, only one had ever malfunctioned until five years before. Since then, one after another, brief failures began to show up in the maintenance records. Two to five minutes at a time, ten or a dozen times a year. Long enough to read and memorize a note, enough even to scribble one off. Three victims had no scanner failures at all until Lacey followed up with records of their vehicle units.

"Okay, what other scanners have similar malfunction records?" Lacey asked, his voice still a flat purr with only a trace of hoarseness.

"Vehicle unit, Southern Regional Pool Car 138814; vehicle unit, Southern Regional Pool Car 759541; vehicle unit, Southern Regional Pool Car, 294773. No other units."

Lacey touched his tongue to his lips. "Who were the cars checked to at times of malfunction?" he asked.

"Alvin Hormadz, Director for Security, Atlanta Subregion; Willa Perhabis, Director for Security, Richmond Subregion; Sig Hanse, Security Coordinator, Southern Region."

Which by that time was no surprise.

"Uh-humm," Lacey sighed, showing his teeth like a satisfied tomcat. He blinked, seeing Tamara for the first time since the data had begun coming in. She was as tense as he had been when he faced the guns of Hanse's bodyguards. "Oh, hell," he said. "Take your helmet off. We're going to be here a while."

She unsnapped the chin strap and slid the gear away from sweaty hair that had stuck to her cheeks. It fluffed in the breeze as she freed it. Lacey's stomach roiled but he grinned wider. If he had not been able to laugh at the irony of his situation, he would have committed suicide within days of his psychic remake.

"Can I ask you a personal question?" Tamara said, her eyes on the helmet as she placed it on the seat beside her.

"Sure," Lacey agreed unconcernedly.

"Why did you commit rape? You aren't . . . you aren't cool, but you seem to act as though you were. How did you come to lose control like that?"

"Oh, my," said Lacey, kneading the back of his neck with his eyes closed. "The people *I* pick up talk about losing control, as if that could make me feel sorry for them. I raped the bitch because it was the only way I

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could punish her as much as I thought she deserved. For this—" he touched his scar—"for a lot of things. I had to find an empty, unfinished dwelling unit with doors I could wedge against the Red Team that was going to come as soon as the scanners picked up what I was doing. You aren't going to successfully rape anybody nowadays if you just lose control, my friend."

Tamara's face was blank. "And you kept your job as an investigator?"

"No, that's not quite what happened," Lacey explained. His grin interrupted him by turning into an open chuckle. "I sold insurance before they got into my mind. The Psycomp seems to have decided that single-mindedness and an ability to plan could be useful to the State—in the right channels, that is."

He nodded at the scanner helmet. "Trouble is, it's not something I can turn off because somebody decided to change the rules. I think I've already gotten deeper in this channel than some folks are going to like, both Hanse and his bunch and the folks who are knocking them off."

"I don't see why the Sepos haven't already arrested you this morning," the girl said. She was facing Lacey, the scanner staring over the top of her head like a one-eyed crow. The sky beyond was empty: Tamara had set them on an older building, designed for elevators and individual offices. When power for the elevators became prohibitive, the upper floors were left untenanted. The view from the roof was clear and because of its stability had an emotional impact unequaled by that of an aircar at the same height.

"Would you rather I didn't ask?" the girl said awkwardly.

Lacey blinked. "Sorry, I was drifting," he said with a nicer smile than before. He scratched his ribs where his jumpsuit clung to them. "No, I can explain it. Hanse wasn't going to arrest me for disarming his thug, he had too much to explain on that one himself. What he was doing here in person, for instance. Given the timing and the fact that his office is in Atlanta, I'd bet he was on his way to warn Follard that somebody had gotten onto whatever game they were playing. . . . " The smile broadened, then faded. "There was a chance that he might have had me shot, of course. That would have been a little easier to clear."

"But you searched his car, you broke his access code," Tamara blurted. She was using both hands to gesture toward Lacey, too agitated to notice that he slid back away from them. "I saw you, the car scanner saw you, the three roof scanners saw you. Why are you still loose?"

"Maybe when Hanse gets around to checking me, I won't be," Lacey said, motioning the girl to calmness. "But the things you're talking about don't flag the computer automatically, friend Tamara. Certain patterns will be kicked up to a human observer by the circuit that watch-dogs all scanner inputs—a room exploding, a CS investigator kicking an armed Sepo in

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the head—that sort of thing. But Loysius Follard falling asleep at his desk didn't set any lights flashing, and neither did a fellow opening the door of a car, then closing it and walking away. The data's there in the vaults under Atlanta; but until somebody retrieves it, I'll still be walking free.

"Riding free," he corrected with another smile. "And I think I'm ready, now, to ride back to the State Building. There's some data there for me, and I've had my dose of open space for the day."

He had lied about his purpose. He walked into Level 17 from the landing pad but glanced at the printout without great interest. The lethal agent had almost certainly been PDT, a volatile liquid explosive/toxin supposedly in military hands only. Anything that exists can be had by a man who knows what to offer the right people.

"Support request," Lacey said to his implant.

"Ready."

"I want a check on PDT stockpiles. Track down any losses and report the results to me."

"Accepted at third priority."

Lacey unlocked the lowest drawer of his desk and took a cylindrical package from it. His face was set but looked ready to explode like a Prince Rupert drop if touched by anyone's glance.

Seventeen was the roof level—government offices were built a little higher, on the average, than new private ones (complaints about "the hogs at the public trough" continued to be useful campaign rhetoric) and Crime Service had to be alongside the pad. Lacey walked the sixteen flights to the ground through offices of identical size and equal crowding. The stairs were a broad helix, thin-railed and with treads which were almost free-standing. They were supposed to deaden sound, but the material creaked. In late afternoon, Lacey was alone on the staircase and drew occasional eyes. None of them remained on him long.

He had over a kilometer to go but he did not take a bus. It was easier to feel that he was anonymous, stepping into a doorway from a sidewalk—there one moment, then gone—than it would have been when getting off a bus at an address that other passengers might recognize.

Ground floor of the old building which was his destination held a food bazaar that smelled musty and sweet. The floor was unpartitioned with its internal load-bearing pillars replaced by transparent myrmillon, but a greasy coating had opaqued them and no one seemed to care. The second through eighth levels were housing of poor and successively-degenerate quality. The ground plan was marked off into eighty dwelling units by waist-height vitril panels on the lower floors, rusted hog-fencing on the upper ones. The center of the big room was a bank of coin-operated hot plates. Other furniture depended on the whim and wealth of the units' occupiers: chairs and frequently a table, beds or floor-

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spread mattresses, and occasionally an electric light to supplement the dozen glow-strips in the ceiling. These would go on at sunset and out promptly three hours later, rain or shine. The only sight barriers in the room were the sheets fronting the latrines at either end, so placed that the stools were shielded from viewers in the belly of the room but were swept by one of the three scanners. Need for the law to make that concession to privacy was thrown in doubt by the unrepaired damage to several of the screens, ignored both by users of the latrines and the others in the room. Lacey climbed through the wretched dwelling levels without expression and, just possibly, without notice.

The ninth floor was empty save for a browned, youngish man on a stool at the base of the winding stairs. "Hey, back already?" he cackled, his grin combining cameraderie and condescension. A woman and three men, one of them well dressed and very drunk, clattered down the stairs together.

Lacey moved aside. He held out three large bills to the doorman. "Which stall?" he asked.

"One a these days you'll want the Honeymoon Suite and I'll fall right off this chair," the seated man chuckled.

"Which stall?"

The doorman blinked up at dark eyes and a neck bright with scarred lightning. His hand twitched toward the length of pipe behind him, but wisely he controlled the motion and took the proffered money instead. "Sixty-one's empty," he said, looking away. "I'll mark you down for it."

Lacey turned without nodding and began to climb the last flight of steps. Under his breath the doorman muttered, "Bet I don't see *you* many more times, buddy. Ones like you they don't let walk around very long."

The tenth floor was sweaty, stinking bedlam, far darker than the lower levels because the canvas cubicles spaced around the walls blocked most of the windows. Studding the ceiling at two-meter intervals were 150 separately-controlled scanner units. They stood like the sprinkler heads of an earlier day in which fire had been thought a greater danger to society than privacy. Beneath them, divided by narrow aisles, were arrayed the cribs that bumped and swayed to the activities of their occupants which the cameras impassively recorded. The accommodation house catered to those who did not want their neighbors in their own dwelling units to learn what they were doing, or who they were doing it with.

In Lacey's case, *what* he was doing it with.

"What stall?" boomed the floor boss, a huge albino with Negroid features who stood in front of a control panel.

"Sixty-one."

"Right, sixty-one," the albino echoed, checking his panel. "Two hours of scanner time. You want company?" His doughy fingers indicated the north wall, the Mourners' Bench, along which waited apathetically a

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score of haggard prostitutes of both sexes.

"No."

"S'okay, sixty-one," the bigger man repeated. "We rent you four walls and a private scanner. What you do with them's between you and the data bank."

Lacey strode down the jostling aisle to the crib marked 61 in red numerals on the tile floor. He stepped inside and drew the curtain shut. The scanner above him beeped and an orange telltale came on, indicating the unit was in operation. The cubicle was dim enough that the supplementary infrared system was probably on. Without haste, Lacey stripped off his coveralls and folded them, laying his pistol on top of the garment. He opened the package he had brought and removed the artificial vagina from its foam nest. He switched it on, sat down on the cot, and affixed it to himself.

Lacey's eyes were as empty as the lens of the scanner they stared up toward as his body shuddered. Beneath the emptiness was a rage that bubbled like lava-filled calderas.

He walked back to the State Building, this time from a desire for walking rather than shame. The shame had drained out of him along with some of the other emotions he was trying to void. Lacey's mind was working again, using the rhythm of his feet to shuffle patterns in the information he had collected. The dusky street was quiet enough and as clean as is only possible in a society in which all litter has value to someone. At alternate blocks stood uniformed police with gas guns and banana-clipped stunners, ready for their computer links to direct them to trouble. For the most part they appeared as bored and logy as the vagrants with whom they shared the evening. There was infrared for the omnipresent scanners, but no power was wasted for men to see by. The night is an irksome companion.

The squad at the gate of the building passed Lacey without hesitation. Several of the red-hatted men recognized him, while the rest ignored him because their implants told them it was safe to do so. On several floors only the stairway was lighted by glow-strips, since government offices tended to close at nightfall like everything else. Level 16, where uniformed monitors wore helmets to direct squads to trouble spots, was a bright exception; and Level 17 was about a quarter occupied also. An investigator could run his subject at any time—the data bank would wait—but many of the hunters were like Lacey. They stuck to the unusual criminal who had eluded the first rush of a Red Team; stuck with him until they had drunk his blood.

Lacey sat at his desk and pulled down the scanner helmet to begin checking back the message capsule. In all likelihood the assassin had not believed that would be possible. In general his assumption would have been correct; but this case had been

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handed to Lacey. The capsule had popped onto Follard's desk from the Tower's security system, hidden from the scanners as it ran past a battery of useless fluoroscopes and radiation testers. For his own reasons, Follard had not allowed a subordinate to open the capsule; he had paid for secrecy with his life. Lacey picked up the capsule where it had entered the system, delivered ten minutes before Follard received it with a mass of others like it in the hold of an aircar. Lacey switched to a roof camera showing two bored guards with batons and the green uniforms of a private message service standing around while the white-haired driver dumped armloads of capsules into the chute. Lacey magnified by ten, then by a hundred, as he focused the image on the tumbling rectangles.

And then the computer took over. With time and even greater magnification, Lacey might himself have been able to catch the routing slip on the metal and identify the death capsule. The precise machinery of the police net scanned the object for tiny imperfections and for details of the routing slip so slight that even the corner of a letter in a camera field would be an identification. Lacking that, the capsule's albedo alone could identify it where the light intensity was known. Technology made practical a job that was otherwise only a theoretical possibility. It was like giving a bloodhound an escapee's sock to sniff.

The capsule had been in the morning's delivery. Had it not been, Lacey would have traced through the Tower looking for the point at which an insider had slipped it into the normal flow. He gave quick directions to his implant and the delivery car showed in his helmet, jerking backward across the city in a series of ten-second jumps. They stopped when the car had run back to its loading point, the internal dock of a regional distribution center.

All but three floors of the huge granite building were lifeless, filled with sorting machinery and endless belts studded with hundreds of thousands of capsules of identical shape and size. Odd-sized packages were handled by humans on the two lowest floors, and the charge for such service was enough to guarantee its use only in cases of necessity. The third level received packages by dumbwaiter and capsules by chute, integrating them into the bins from which the delivery cars were loaded.

The computer needed further guidance at that point, for the chutes themselves were inaccessible to men and thus unscanned. The conveyors on each floor, however, with their complex system of shunts, feeds, and crossfeeds that sorted each capsule toward its proper drop chute, were open to the cameras. Lacey moved floor by floor, focusing each time on the aperture which dropped capsules into the Follard Tower bin. His voice had grown husky with giving directions and his fingers stiff from flexing on his chair arms, but if anyone could

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have seen his face behind the helmet they would have cringed back from a smile more fitted to a tiger than a man. Even a man like Lacey.

Mail to the Follard Tower was delivered at twelve-hour intervals. Lacey ran each floor back to the time the previous load had gone out, then switched up one level. The speeded up, reversed flow of images would have driven mad anyone less used to it than he was; and perhaps—a possibility that Lacey had never denied to himself—he withstood it only because he was already mad.

On the eighth floor he picked up the capsule again, part of a shipment brought from Richmond Subregion by high-altitude airliner. It was not too long afterward that Lacey's helmet focused on a Petersburg street and a man, slim and fiftyish with tight-rolled hair and a skin so black it looked purple, who dropped the capsule into a collection box and then thumbed in coins until the postage light glowed green.

"Name and data," Lacey croaked to his implant.

"William Anton Merritt, age 54, on dole for past thirty-seven months. Eight years Chief of Operations, Security, for Southern Region. Previously—"

Lacey cut off the flow and returned to his man. It was without surprise that he backtracked Merritt to a counter in the General Delivery room of the Petersburg mail depot where he had peeled off a routing slip addressed to him and replaced it with the one that would carry the toxin to Follard. There was no reason, after all, that the murder device should have been prepared in the subregion from which it had to be mailed in order to pass as coming from the conspirator Mitchelsen. Back a step further, then; Merritt punching his ID on a code board and waiting the few seconds for the capsule to drop into the delivery slot. From there back through a mirror image of the previous routings—no less arduous, but no less possible to follow—for they led straight back to Greensboro Subregion in which sat Lacey hunched under his helmet and the body of Loysius Follard lay on a teak slab with a thousand torchlit mourners howling around it like the damned.

This time Lacey did not need the data bank to identify the girl who jumped from an aircar to mail the capsule to Merritt in Petersburg.

For the moment he did not trace the capsule to the point at which it was filled with explosive and sealed, or back even earlier when the PDT had been removed from some government stockpile. That information was safe in the data bank until he chose to retrieve it, and the people concerned—the scores or perhaps hundreds it had taken to bring off so many simultaneous assassinations—would be just as easy to find a few hours or days later. Only death had ever saved a target from Lacey. Instead of searching for other names now, he twitched the finger no wedding ring would ever grace and said,

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"Give me a current location on William Anton Merritt."

Information that far-reaching required a delay for computer time to check literally hundreds of thousands of scanner images in a pattern of concentric probabilities; but for Lacey it was only seconds before the data squeaked back into his mastoid. He grunted as he considered it. "Estimated time of arrival?" he asked.

"Forty-three minutes."

How does an ex-bureaucrat, supposedly on State Subsistence Allowance, come to be piloting a private stratosphere craft from Toronto to Greensboro? Friends, doubtless, like everything else Merritt had arranged. Lacey gave a few specific instructions, then asked, "My driver from yesterday—Tamara Damien. Is she on duty?"

"She will report at 0700. Do you wish another driver assigned or should she be given an emergency summons?"

"Umm. What time is it?" The windows were, Lacey noticed as he swung up the scanner helmet, beginning to pale.

"0637."

"Fine, I'll be in the target range. Tell me when she gets in."

The range was a quadrant of Level 15, separated by opaque partitions despite the added scanner cost. Experience had proven that peripheral images of men raising guns destroyed the efficiency of the clerical unit sharing the floor, even though a myrmillon divider would have been more than adequate to stop the tiny needles.

There were already a dozen shooters using the twenty-meter range, standing with their backs to the outside windows and firing inward toward the point of the wedge where the target screen stood. Jacket open, Lacey took a vacant station. His stance comfortable and his fingers curved loosely on his thighs, he announced, "Ready."

A target image visible only from his station flashed, a tawny woman raising what might have been either a length of pipe or a shotgun. Lacey's weapon was in his right hand, then locked with his left as he crouched and fired three shots so sudden they appeared to have been fully automatic.

The target disappeared and a silhouette of it formed on the spotting screen just above Lacey's head, red dots at right wrist, right elbow, and right shoulder identifying his shots. His implant said, "Time, point three six seconds. That is exceptionally good. However, your accuracy continues marginal with no hits in the central body mass"—the silhouette's torso pulsed red for emphasis. "In a true firefight, you may not be lucky enough to get limb hits if you are so far outside your aiming point. Speed is less critical than accuracy."

Computers have no sense of humor, so Lacey avoided even the edge of a smile when he heard it refer to what it imagined had been his aiming point. He had raped, openly and with deliberation, and had forever lost his ca-

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pacity for a similar act. He would not make the same boastful error if he ever found it necessary to kill: *that* must look to be an accident.

He was a violent man in a world of arrogance—of Sig Hanse and his Sepos, of the sneering Red Team which had taken him into custody years before, of the myriad counterclerks and bureaucrats taking their frustrations out on the nearest target. Lacey avoided an actual explosion only because he knew his hand had the power of life and death over every one of them individually. If the Psycomp had noticed that murderous streak, it had weighed it against Lacey's depth of control and usefulness—then passed him as acceptable to the State.

Targets continued to flash. He sprayed the edges of five more—on one he hit a swinging medallion three times and got zero credit since, of course, a real medallion would have deflected the needles which grounded themselves only after penetration. Finally his implant announced, "Chauffeur 5 Damien has reported to her car."

"Patch me through to her," Lacey said, slapping a fresh magazine into his gun before he holstered it. He turned to the nearest window. For cleaning purposes the whole two-meter vitril panel pivoted inward.

"Ready."

"Morning, Tamara. I'm in the target range, Level 15. Drop down and pick me up, will you?"

The girl's voice was deepened by the car microphone and Lacey's implant. "No landing stage on fifteen, sir."

"Sure, but the window's open."

"On the way."

Lacey swung the vitril off its catch. The gush of air as the car dropped past it, then rose and steadied, brought a startled protest from the shooter beside Lacey. He ignored the other man, set his left foot on the sill and stepped into the back of the car. The slightest movement of the vehicle would have catapulted Lacey thirty meters to the pavement. Tamara kept it rock solid until he was seated, then moved off a few meters to where she did not have to fight the eddies around the building.

"You didn't do that to save yourself a walk," she chided. "Trying to prove something to me?"

"That's right," he agreed. "That I can safely trust you with my life." He leaned forward, grinned up at the scanner, and said, "We're going to the airport, friend Tamara, to arrest a man named William Anton Merritt for multiple counts of murder. He wasn't in it alone, Lord knows, but it'll be simpler for a Psycomp to dig out his accomplices than it would be for me and a scanner."

She moved the car off smoothly without apparent emotion, gaining speed and altitude as she headed west. There were no lane markers in the sky, but cars were few and almost all drivers professionals. On balance it was safer than street traffic had been fifty years before.

"You are good, aren't you?" Tama-

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ra said at last in a jerky voice. Lacey made no reply. "Don't you even wonder why a, a *citizen* like Bill Merritt would start a p-plot like this?"

"Wonder?" Lacey repeated. "Not really. He was, is, a very damned able man himself. The killings, the planning for them, proved that. Hanse could and did shunt him out of the service, of course, but Merritt's own contacts must have been nearly as good. As Chief of Operations he could have . . . not seen it, I think, because Hanse's a sharp boy too . . . but felt it when some members of his own organization got together with rich men, men with connections outside the country where arms could be stockpiled and soldiers trained. You could take over this State, I think, with a few men in the right place and not too many more scattered around to look menacing. You could do it because damned few of the rest of them care. Of us care."

"Bill cares. He found—a lot of us who do."

"Sure he did, friend Tamara. And he killed not just eighteen people but likely two or three others standing too close to each of the ones he aimed at, too. I won't arrest him for caring, just for the murders; because it's my job and I'm better at it than he hoped."

She turned toward Lacey at last, her eyes full of tears and fire. "Do you know how many thousand they'd have killed if they took over? How many Hanse *will* kill if he gets away to Argentina this morning? Do you call *that* justice?"

"Justice? What's that?" Lacey demanded. "But they pay me to enforce the law, and yes, that's damned well the law!" He took a deep breath. "Now, mind your flying. If we go down, there'll be a Red Team around Merritt before the echoes of the crash have died. Believe me, he'd rather I take him than those animals in uniform. . . . Believe me, I've been there."

She obeyed but the tears gurgled in her voice. "Don't you think you owe anything to society?" she asked.

"This society?" Lacey repeated with savage incredulity. "The society that made me what *I* am?"

Tamara said nothing more for a minute, concentrating on the thickening traffic as they approached the huge concrete slab of the port.

"We've got a priority clearance," Lacey said. "You can set us down on the terminal building."

"We couldn't get close to Hanse," the girl said, as much to herself as to her companion. "When he flew it was in his own CT-19, and he always carried his own car with him. He didn't trust anyone, anything. We delayed, hoping he would slip up; but we waited too long. And so their plans were so close to ready that if Hanse gets to Parana now, he may be able to bring it all off even with Follard and the others dead."

A heavy cargo aircraft lumbered aloft a hundred and fifty meters from its painted bay on the great field. Three seconds later a private supersonic, incredibly expensive to own

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or operate, streaked skyward with its wings folding even as it climbed. Short takeoff and landing requirements made full runways a thing of the past, but the congestion and varied speeds near the port still demanded rigid control.

Lacey had noticed the girl start as the supersonic shrieked away. "Merritt's in one like that?" he asked. "Don't get excited, it wasn't his that time. I've put a hold on him, blocked his controls through the port computer. He'll be waiting for us."

Tamara angled for a slot on the crowded roof of the terminal building. A closed car sped up to reach the same parking space, then spun away as Tamara hammered it with the draft of her fans. Lacey, gripping the bulkhead tightly, grinned over at the furious red face visible through the cabin window of the other craft.

Tamara cut the drive and they ghosted to a halt. She looked back at Lacey. He said, a trifle awkwardly, "It'll be ten, twelve hours before they start dragging actual names out of Merritt. Somebody who'd gotten out of the State before then—used Sig Hanse's access code to fake exit privileges to Munich, say—would be gone for good."

The girl stared at him, her eyes an acid blue and her hair springing up like a cobra's hood as she doffed her helmet. "Bill had me assigned driver to whoever got tapped to investigate Follard. He pulled a few strings, nothing major for somebody who has as many friends as Bill Merritt does. There was a chance that by giving him a nudge in the right direction, we could get a CS agent interested in what Hanse was doing. You didn't need the nudge—or care about what you learned without it.

"But I'm not going to use the position Bill put me in to save myself."

"It's your life," Lacey said, breaking eye contact as he climbed out of the car. "The Lord knows I'm not the one to tell you what to do with it."

"I'm coming along," Tamara insisted, swinging into the narrow aisle between their car and the next one over. Lacey shrugged and walked toward the stair head.

Hanse too would be somewhere in the port. Lacey had said he did not care about the Sepo conspiracy, and in a way that was true; but the scar on his neck throbbed like molten steel at the thought. He jostled his way down the crowded stairs, Tamara an orange shadow behind him. At the ground floor he followed the directional arrows toward a balding fat man serving one stall of the console marked TRANSPORTATION TO AIRCRAFT. There was a line but the investigator stepped to the front of it with a gruff, "Excuse me."

To the clerk he said, "Priority. I need a car to Slip 318," and he cocked his ring finger. The fat man's display obediently lit red in response to an authenticating signal from the CS net.

"Door 12, then," the clerk said with a nervous shrug. "But look, buddy, we're short today, there won't be a

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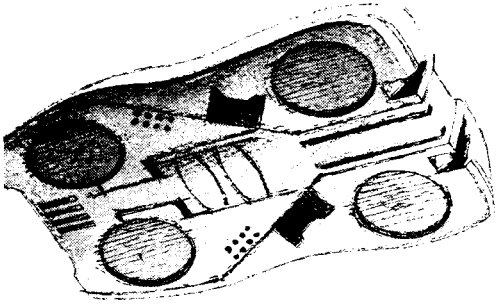
driver for seven, eight minutes."

"I didn't ask for a driver." Lacey turned, took the twenty long strides to the indicated portal without speaking. Half a dozen ground cars were lined up on the concrete beyond; nearly a hundred would-be passengers stood beside them docilely, waiting to be taken to their flights.

A big man, one of the pair of guards with Hanse the day before, stepped



out of the crowd. It rippled away from him like sheep from a wolf in their midst. He had dropped the poncho which had cloaked the weapon along his right thigh, an automatic powergun with a drum magazine and a flask of liquid nitrogen under the barrel for cooling and ejection. "That's far enough, Lacey," he said with a smile. "You must have known we'd check what you were doing yesterday."

The bodyguard swung up the muzzle of his weapon. Lacey drew without hesitation, shot the Sepo twice in the trigger hand. A fist-sized chunk of concrete blew from the field as the Sepo spasmed off a shot, but his paralyzed body was already twisting into the ground.

"Lacey!" the girl screamed. He spun, his gun leading his body around in a glittering arc—too slowly. Tamara was leaping for the second guard, his eye as black as the bore of the powergun it stared over. Lacey heard the sudden grunt of the shots, saw the cyan glare catch Tamara in midair

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and use her own exploding fluids to fling her backward with her chest a slush of blood and charred bone. A cloud of ice crystals hung at the Sepo's side and his plastic empties were still spinning in the air when Lacey shot him in the right eye.

The charge that would have stunned elsewhere blasted the optic nerve and ripped down that straight path to the brain. The Sepo arched in a tetanic convulsion that broke his neck and back in three places. The powergun spun into the building, cracking the vitril and ricocheting to the pavement.

Lacey did not look again at the girl, but he had seen her face as the burst slashed across her. Holstering his needle gun, he mounted the driver's seat of a twelve-passenger crawler and threw it into gear. The numbers on the empty slips were hard to read, scorched and abraded by the lift fans, but Lacey had his implant to guide him across the baking concrete. Once a huge CT-19 freighter staggered aloft just after he had passed its bow, but either luck or the watchful Terminal Control preserved Lacey while his quarry, a spike of silver fire, grew in front of him.

"Status on Merritt?" Lacey asked his implant.

"Three minutes ago requested permission to lift, destination Buenos Aires. Placed on safety hold by Terminal Control on orders of the Crime Service net."

"Umm. Status on Sig Hanse?"

"Cleared for Parana in a CT-19 with five crew and seven passengers, one aircar declared as cargo. Estimated lift-off is three minutes thirty."

"And it'll have a battalion aboard when it and a thousand others come back," Lacey muttered, but he did not trigger his implant.

Close up, the craft that looked so slender among the cargo haulers was a study in brutal, wasteful power. Its turbines were spinning fast enough to raise a whine but not dust from the concrete. Lacey pulled in close to the port side, in between two of the ducted intakes. As he did so the cockpit canopy three meters above sprang open. The aging black man Lacey had seen on the scanner began to climb down the rungs which had extended from the ship's side.

"Citizen Lacey?" Merritt said as he reached the ground. He stretched out his hand, as dry and unyielding as a cypress knee. "Now I understand why Terminal Control froze me for a circuitry check. I don't suppose they were going to isolate the problem quickly, were they?"

"No, not till I gave the word," Lacey agreed disinterestedly.

Merritt shook his head with a faint smile. "Of course, of course. You're a very able man. And I can almost admire your single-mindedness, since after all that's the way I am. Well, shall we go back and meet your team of brain-wreckers?"

Lacey ran a hand along the stress-rippled skin of the aircraft. "What would you have done if Control hadn't

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held you?" he asked. "Lifted off in a few minutes?"

"Something like that."

"And you'd have laid your throttle wide open, wouldn't you? Put it right through the middle of Hanse's CT-19. Wouldn't that be pretty? You and twelve other people falling out of the sky like shaved meat? You know, I don't ever remember meeting anybody who liked to kill as much as you seem to."

Merritt bit his lip. "Citizen Lacey," he said, "I've lived in this democracy fifty-four years, worked toward its safety for thirty-one. I would be less than a man if I weren't at least willing to die for it; and to keep it and the world out of the hands of Sig Hanse and his sort—yes, I'll kill."

The emotion behind Lacey's smile was not humor. "Must be nice to know what's best for the world," he said. "I've got enough problems deciding what's best for Jed Lacey, and that's the only thing I've tried to worry about. Figured it was mostly me I had to live with."

"No doubt," Merritt said flatly. "Then if you have nothing further to say, shall we get on?"

"Sure," Lacey agreed. He triggered his implant. "Release the hold on William Anton Merritt," he ordered. "Clear him for immediate lift-off." He stepped back to the ground car alone, waving a casual hand back at the older man. "Have a good flight, Citizen Merritt."

Lacey's car was half a kilometer away when he heard Merritt's tur-

ana log — A Calendar of Upcoming Events

1-4 July
WESTERCON 30 (West coast Science Fantasy Conference) at Totem Park Residence, Univ. of B.C., Vancouver, B.C. Guest of Honor—Damon Knight; Fan Guest of Honor—Frank Denton; Special Guest—Kate Wilhelm. Info: Box 48701, Stn Bentall, Vancouver, B.C. Canada V7X 1A6.

15-17 July
ARCHON at Stouffers Riverfront Towers, St. Louis, Mo. Guest of Honor—George R.R. Martin; Fan Guest of Honor—Leigh & Norbert Couch; Special Guest—Gale Burnick; Toastmaster—Donn Brazier. Registration $5 in advance, $7 at the door. Info: John Novak, 1260 Moorlands Drive, Richmond Heights, MO 63117.

25-30 July
Port Townsend Science Fiction Workshop; featuring Frank Herbert, Ben Bova, Jack Vance, and Lester del Rey. For serious sf writers. Tuition: $115.00; room and board: $33. For further information write: Centrum Foundation, Fort Worden State Park, Port Townsend WA 98368.

29-31 July
RIVERCON III (Kentucky Regional SF Conference) at Stouffers Louisville Inn, Louisville, Ky. Registration $5 in advance, $10 at the door. Info: Steve Francis, 5503 Matterhorn Drive, Louisville KY 40216.

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bines shriek up to full power. From further across the concrete came the deep thunder and subsonic trembling of a CT-19's beginning effort to stagger skyward. Lacey's implant cut out both sounds when it announced, "Reply to support request, theft from PDT stockpiles."

"Ready."

"Four hundred liters removed from Redcliffe Arsenal, Toronto Subregion, on 4-23-02. Currently believed being transported in reserve fuel tank of private aircraft number—"

Lacey had anticipated the next words, so he was out of his seat and diving toward the concrete when the concrete rose to meet him. Twenty meters above the field, Merritt's aircraft had collided with Hanse's. The supersonic caught the CT-19 abaft the starboard wing, stabbing through the bulbous cargo hauler like a swordsman seeking the heart. The first microsecond of rending metal was lost in the bellow of the engines; then the PDT went off.

All sound ended as an orange fireball devoured the merged aircraft. The blast that followed was like nothing heard since the end of nuclear testing.

Alive but uncaring, stripped by the winds and hammered by the bucking concrete, Lacey lay on the field. He could let the tears come now.

In his mind, back-lighted by the afterimage of the fireball, was the vision of a girl with blue eyes, jet hair, and a smile of love and triumph. ■

In 1949 nuclear energy was a bright new promise, and exciting enough to be on the cover of ASTOUNDING SCIENCE FICTION. Today, that promise has still not been fulfilled, and nuclear powerplants are stalled far short of the goals of thirty years ago.

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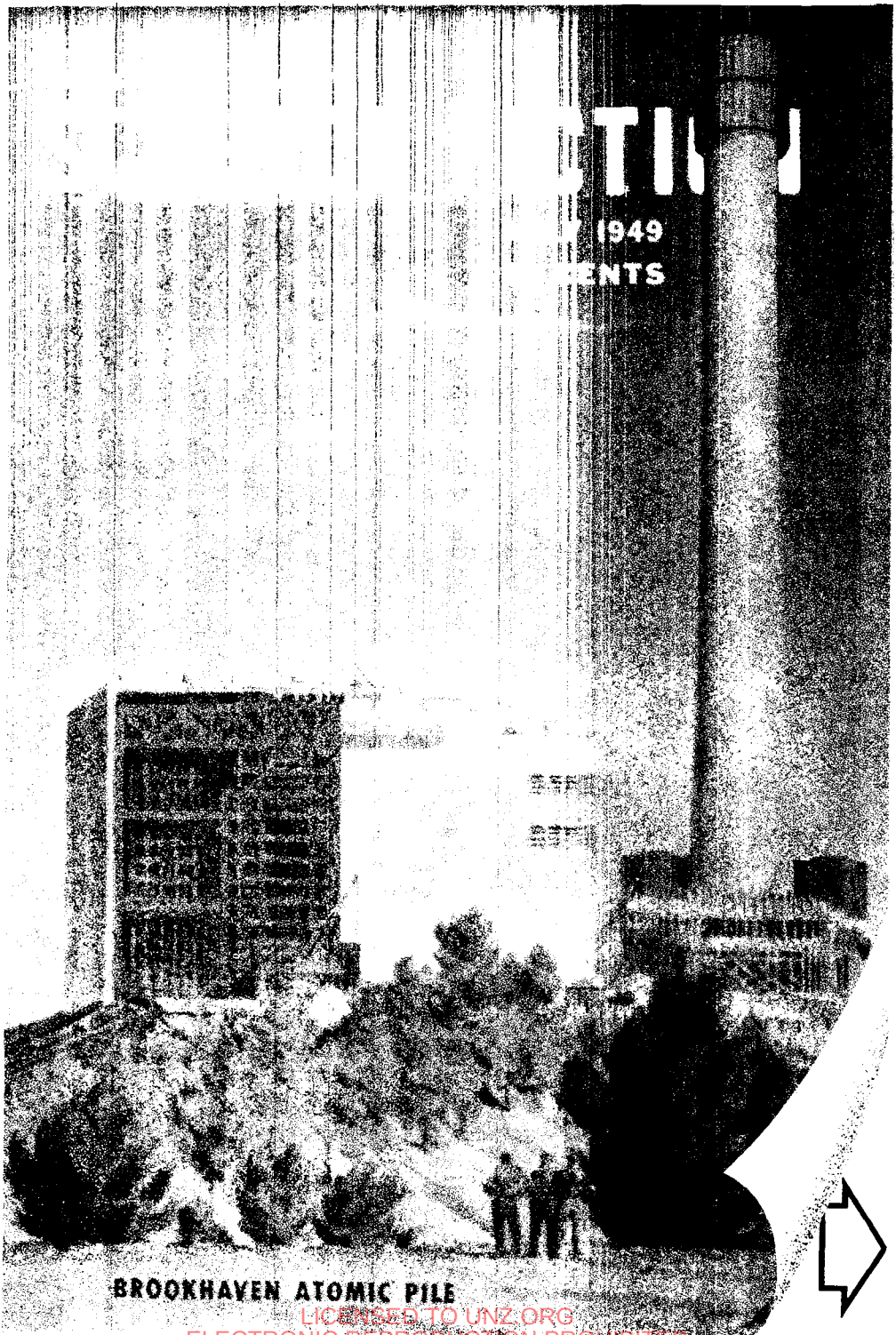

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The Nuclear Controversy: An Overview

A pessimist sees a half-filled glass of water as half-empty. Now . . . is nuclear power safe or dangerous?

Edward Wood

The nuclear controversy which many people simplify into, "Are nuclear reactors dangerous or are they safe?" is really a complex of questions dealing with scientific, economic, and sociological issues. People are entitled to a clear, concise, and relevant discussion of the issues. Instead they are given opinions and distortions of facts that make it impossible for rational decisions to be made. This is a sad situation to result from one of the most brilliant scientific and technological achievements of the twentieth century: i.e. the utilization of atomic energy to end a world war and to provide useful energy to our energy-hungry world.

The reader of this article is entitled to know the bias of the writer. Nuclear energy can provide a useful short-term energy source until other sources are found and/or developed. In some circumstances, it can be a long-term useful energy source *provided it is used with caution and intelligence*. I must insist on the disclaimers. There are many problems that we don't have the answers to and there will unquestionably be new problems which haven't arisen yet. What about alternatives such as solar power, tides, wind, fusion, magnetohydrodynamics, conservation, etc.? Fine, I'm for them all; in a well thought-out comprehensive program that will explore alternatives to the now available fossil and nuclear plants.

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Nuclear plants have been built and more are building. If voters in various states vote to stop the construction of nuclear reactors, it will still be necessary to obtain energy by other means. The nuclear industry congratulates itself because it has won nuclear referenda in seven states in 1976. By a two to one vote, nuclear reactors still can be built and operated in the states of Arizona, California, Colorado, Montana, Ohio, Oregon, and Washington. Just because a few battles have been won doesn't mean the war is over. Let us keep the lesson of Prohibition before us. A referendum defeated in one election might well become law in another. Some in the nuclear industry would like to have the bulk of voters believe that the opponents to nuclear reactors are just a bunch of cranks, "eco-nuts", and fools. This is inaccurate. The opposition contains Nobel Laureates, competent scientists, concerned citizens, and many other dedicated persons besides a few cranks. The same thing can be said about the proponents of nuclear reactors. How can the public decide when even the experts disagree? This can only be called a "Catch-22" situation!

Let's look at the present nuclear picture and see what some of the problems are. Just about everyone knows that nuclear reactors operate on the principle of obtaining heat from the fissioning of uranium and eventually using that heat to obtain steam from water and then using the steam to drive turbines to make electricity. We'll start with uranium.

Uranium mining

Uranium is not found free in nature. It is mined as an oxide, usually U_3O_8. Uranium miners pay a price for working in uranium mines. Radon, a radioactive gas given off from uranium ore (technically from the radium in the uranium ore) emits alpha particles. If sufficient radon is ingested, it can result in lung cancer. Proponents of nuclear energy like to compare the fatalities among coal miners (there are many since coal mining is a most dangerous occupation) with the no fatality record of nuclear power plant operators (probably the safest and most cushy job imaginable). To be fair about it, one should compare fatalities of coal miners with the fatalities of uranium miners. That would be the intelligent comparison.

In one of the sadder aspects of the history of the now defunct AEC, uranium tailings were used as gravel for roads and landfill for homes, as well as for the construction of basements by some contractors and members of the public. These tailings which were left behind after the bulk of uranium oxide had been removed and shipped to conversion plants elsewhere still contained the radioactive members of which uranium was the parent element. One of these members is radon. As was said before, ingested radon can cause lung cancer. People don't usually wear air masks in their own basements and homes or while walking down the street. The AEC claimed it had sent warning letters to the appropriate authorities.

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The supplies of uranium ore are limited. Once taken out of the ground and used, there are no processes that can replace the uranium ore in the ground. Like coal and oil, it is an ever diminishing energy source. Depending upon the price paid for the ore, there are different amounts of ore that can be profitably mined. Just to show you that the nuclear industry isn't always too bright, one very large nuclear vendor in the past made agreements with various electric utilities to supply uranium at $3 to $8 per pound. The price of uranium today exceeds $40 per pound. Naturally the utilities are insisting that their contracts be fulfilled. The courts will decide this one.

With the increasing cost of uranium ore will come an increase in the cost of electricity generated by nuclear energy. It may be possible to increase the supply of nuclear fuel by building what is called a breeder reactor which makes more fuel than it uses. This may sound a bit like perpetual motion but it isn't. The uranium in nature is composed of three isotopes, U-234, U-235 and U-238. Only the U-235 is fissionable in the reactors now in use. This isotope exists only as 0.7% of total uranium. In a breeder reactor, the fast neutrons generated in fission can interact with the bulk of uranium-238 to give, by double beta decay, the element plutonium, (in fact the isotope is Pu-239 which is a good nuclear fuel as well as excellent atomic bomb material). After a sufficient amount of time, the fuel elements are removed and the fuel elements processed to separate the plutonium and uranium. The uranium can be fabricated back into fuel elements to make more plutonium. The plutonium is made into fuel elements and used in plutonium-fueled nuclear reactors (this is called Plutonium Economy). Additionally, thorium deposits can now also be used because thorium-232 can be converted by double beta decay after reacting with neutrons to give the isotope uranium-233 which does not exist in nature but which is fissionable like U-235 and Pu-239. Thus we can stretch out our supplies of nuclear fuel to last for centuries. This is true only if the breeder reactors are built in time and they breed sufficient additional fissionable material. The large breeder reactor being built on the Clinch River is way over budget and far behind schedule. Time is running out. Luckily we do have a large supply of Pu-239 in the form of bomb material which could be used in an emergency to make plutonium fuel elements to fuel nuclear reactors. It took a lot of energy to make those bombs.

Conversion Plants

The mined uranium oxide must be separated from contaminating material and the uranium must be enriched in the usable 235 isotope. One of the first steps to do this is to convert the oxide into the fluoride and then into the gaseous uranium hexafluoride. There is sufficient capacity to be able to do this at present in the United States.

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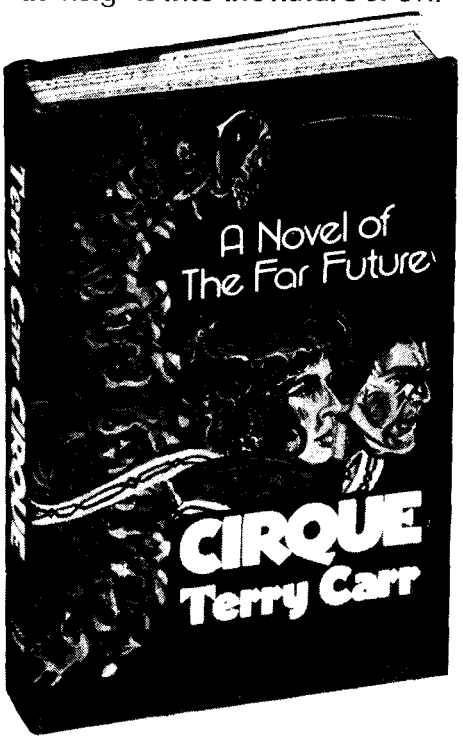

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Enrichment Plants

Electric utilities use uranium dioxide fuel pellets enriched to several percent (3 to 4%) in the two types of nuclear reactors presently in common use in the United States, the PWR (pressurized water reactor) and BWR (boiling water reactor). Enrichment is done at gaseous diffusion plants owned by the U.S. government and operated by civilian subcontractors. There are no commercial plants in the country that do this enrichment work at the present time. It is expensive. When the Shippingport reactor was being built in the mid-50s, the inhouse joke at Westinghouse used to be that, "Here we are, using ten percent of the whole electrical output of the country so that we can make the fuel elements to return 0.1% of nuclear generated electricity to the grid!" It was well understood that Shippingport was a prototype and would give valuable experience and data for future reactors. It probably was worth every cent spent on it.

There are other enrichment processes which may make gaseous diffusion obsolete. Such ideas as gaseous centrifugation (upon which both we and the Germans did some work on during World War II) and laser enrichment[1] might make it possible for commercial firms to get into the uranium enrichment business without the enormous plant investment that a gaseous diffusion plant requires. As far as is known, none of these alternatives is commercially feasible yet.

By passing through a series of porous barriers (the higher the enrichment, the more barriers), uranium hexafluoride gas is separated into uranium hexafluoride gas having higher and lesser proportions of the U-235 isotope. This is done by taking advantage of the slightly higher speed of the U-235 hexafluoride molecule since it has three neutrons less than the much more abundant but heavier and therefore slower U-238 hexafluoride molecule. We come in with UF_6 and we leave with two kinds of UF_6, one kind enriched to the proper percentage of U-235 isotope and the other UF_6 greatly depleted of the U-235 isotope.

Reconversion Plants

The enriched uranium hexafluoride is sent to a reconversion plant and is converted back into an oxide but not U_3O_8, rather to the dioxide UO_2. Now this black powder can be shipped to fabrication areas where the powder can be pressed into any desired shape. Usually it is used in the form of small cylinders. Production capacity seems adequate in this part of the cycle.

Fuel Element Fabricators

The companies that build and manufacture nuclear reactors usually fabricate their own fuel elements and fuel assemblies to their own particular designs. What usually happens is that fuel pellets are placed into long Zircaloy-2 (an alloy of zirconium and tin) tubes. A group of these tubes are fixed together into an assembly. The assemblies are shipped and placed into a

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nuclear reactor at the final construction stage. The nuclear industry usually does itself proud with extremely close and fine quality control over all aspects of fuel element fabrication. The elements and assemblies are manufactured like fine Swiss watches. They cost about the same proportionately speaking. There are only a few manufacturers doing this type of work and much of it is like a cottage industry. One batch of fuel elements and the lines are shut down until an order for another batch of fuel is obtained. With proper scheduling, it might be possible to automate much of this work.

Nuclear Reactors

While we have been following the uranium from the ore to the core, a nuclear reactor plant has been building (it can and has taken as long as ten years to build such plants). The paperwork alone is phenomenal. Much information has to be supplied to federal and state governments as to earthquake frequency, population density near the reactor, ecological effects of the plant's construction and operation, training of the personnel, details of the reactor itself, etc. Almost every piece of relevant and irrelevant information one could wish for is there, in some report, somewhere.

A short aside here. In the fifties and into the sixties, a number of different reactor types, organic moderated reactors, sodium coolant reactors, thorium fueled reactors, superheat fuel element reactors, boiling water and pressurized water reactors were built and many other reactor concepts investigated (e.g. molten salt reactors, spectral shift reactors, etc.) with the idea of selecting the best ones for regular power production. They were built with the idea of learning and not necessarily as economic power producers. When a lot of these experimental plants were shut down and/or dismantled, one of the reasons given was that they were not economical! So American technology sowed a wide and full field and neglected to do the required reaping. It would take a brave man to say that today's PWRs and BWRs cannot be improved. Who is to do the experimentation? ERDA (Energy Research and Development Administration), the successor to the operational and experimental part of the old AEC, has its hands full trying to get its priorities right. Utilities certainly do little or no experimentation. They produce power and profits. One sometimes reads their ads where they brag about being into fusion, magnetohydrodynamics, fission reactors, etc., etc. They are spending a fantastic million or two a year on all these *advanced space age technologies*. Of course their public relations departments neglect to tell anyone that they spend three million dollars a year manicuring their lawns. What they really mean to say is that drop a few thousand at one school and a few thousand at another school or think-tank or consultant firm in the hopes that someone will come up with big breakthrough on the cheap. Maybe—

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They just haven't heard that this is the age of big science.

The Operation of Reactors

The nuclear reactor is merely a heat source. If you went out and cut down a forest of trees and heated the water with the burning wood you would get the same electricity out of the other end.

Unfortunately the basic system is so loaded down with auxiliary systems and safety systems and redundant backup systems that the essentially very simple reactor becomes a vast conglomeration of pipes, valves, pumps, electronic, mechanical, and chemical control systems. Sometimes the very attempt to add a safety system is counterproductive because the entire concept is not carefully thought out and tested. For example, some reactors have a safety system by which a very saturated solution of boric acid can be injected into the reactor to shut it down swiftly if the other shutdown systems fail. This is due to the large neutron absorptive powers of the Boron-10 isotope. At one reactor, they tested the system by opening up the valve to the boric acid tank. Only a thin trickle of boric acid came out of the line. The boric acid had precipitated out and blocked the line. The addition of a few heaters along the lines and tank is said to have solved the problem. "Blessed is he who checks his systems and finds they work! Double blessed is he who checks his systems and finds they do not work and corrects them so they do work when needed!"

It is essential that the heat from the fuel elements be continuously and efficiently removed by the coolant because if the heat is allowed to rise above a certain temperature, the elements will melt. Stopping the fission reaction is not sufficient because the fission products already inside the fuel elements continue to produce heat. The fission products are a result of the fissioning of U-235 atoms during reactor operations. Even if a reactor is no longer producing electricity because of a shutdown, it cannot be ignored and all the operators go home. The reactor must be continually and carefully monitored to insure reactor integrity and public safety.

Even when a reactor is working without a malfunction, it must be monitored to anticipate problems. Water, by its chemical nature, is close to being the universal solvent and its use as a reactor coolant adds to the operational difficulties faced by reactor operators. Exceedingly small amounts of out-of-core material (pipe wall material, valve seat material, etc.) are brought into the core by certain transport mechanisms and remain in core and on core internals for varying periods of time. That they remain permanently inside the core and not interfere with the functioning of fuel elements, control rods, nozzles etc., would be most desirable since the core is well shielded in terms of radioactivity. However, these small amounts of material (usually called

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"crud") are irradiated in the core, become extremely radioactive and are transported out of the core region and deposited in less well-shielded regions of the reactor systems—causing the buildup of very high radiation levels which can and do interfere with maintenance and needed repair work. This is when the public learns that a simple ten minute welding job required the use of two hundred welders because each individual welder could only work a few seconds before he received his permitted radiation dose. These kinds of problems are expensive to the utilities and eventually to their customers. Preoperational chemical conditioning of reactor surfaces, chemical additives to the coolant, and finally chemical cleaning of out-of-core surfaces, by potent chemicals are some of the solutions that have been used to diminish the crud problem. This last requires suspension of reactor operations, sealing off the core from the rest of the system to be cleaned (remember those core fuel elements are still giving off heat), draining the section to be cleaned, adding the cleaning chemicals, allowing time for the chemicals to react with the crud, draining the now depleted chemicals which are filled with the radioactive crud, flushing the system until the desired purity of reactor coolant is obtained, and removing the seals to the rest of the system. Now you have to remove all the chemicals and flush water from the reactor site and take care of all the removed radioactive material. None of these operations are cheap. Nothing connected with the maintenance or operation of nuclear reactors ever is.

It might be possible to "fool" such crud deposits by attaching a side-stream system downstream of the outlet of the reactor core which contained finely powdered metal of say a hundred times the area of the regular reactor system and allow the irradiated crud deposits to distribute themselves accordingly. Of course, pump speeds, coolant velocities, valve integrity etc., might not allow such an idea to be practical but it would be possible to try it out if there were full-sized reactors devoted to such experiments. The utility industry spends so much money constructing tried and true nuclear plants that they just cannot afford experimentation. Their reactors have to produce as much power as possible and for as long a period as possible. Current plants are supposed to last for forty years. In the thirty-four years since the first operation of reactors in the U.S. on December 2, 1942, power production has gone from a few watts to 3300 Megawatt thermal or, since the plants are only 33% efficient to 1100 Megawatts electrical. A megawatt is a 1000 of those kilowatts we pay for, or a million watts. To get some idea of what this has meant, it might be remembered that before 1940 even fossil fuel plants of 500 Megawatts were beyond the capability of the power industry. Operational data from the huge nuclear plants is still insufficient to see if they are the most desirable size to

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build. Big is not always best.

The main accident that causes the antinuclear community so much unrest is a possible rupture of the main coolant loop, the loss of coolant and the failure of all safety shutdown systems with a catastrophic melting of fuel elements, metal-water explosions, and release of fission products in lethal quantities to the biosphere. Such an accident hasn't happened *yet* and the pronuclear community insists that it can't happen because of the many computer studies that have been done. Outweighing any computer study would be to actually break such a loop in a real reactor and see what the consequences are. Such a reactor experiment was proposed in the mid-60s at the National Reactor Testing Station in Idaho but here it is, the mid-70s and the renamed Idaho National Engineering Laboratory has still to see LOFT (Loss of Fluid Test) renamed LOCA (Loss of Coolant Accident.) One suspects that all the remaining is done to confuse everyone as to what the original object of the test was. The postponement of this vital test is not a situation to inspire confidence in the safety of present day nuclear reactors. Some cries by the establishment that the test is too costly and wouldn't prove anything anyway have about as much validity as the complaint of the Cadillac owner that the bus fares are too high! The countless millions wasted in the nuclear program on nuclear aircraft, nuclear rockets, reactors completed but never brought to power, do not make pretty reading. At least if a functioning reactor were destroyed in a worst case incident, one could see how the safety systems worked (or didn't work) *under operating conditions.*

Computers have added much to scientific and engineering knowledge and to other aspects of our technological civilization but they do have their limitations. Fuel pellets under irradiation were expected to expand and so some manufacturers left space in their fuel rods for this expansion. Lo and behold, the fuel pellets contracted under irradiation and the rods caved in at the places where large gaps developed between the pellets inside the tubes. The situation was corrected in replacement tubes by pressurizing such tubes with an inert gas. Yet no computer predicted such an occurrence.

In spite of the few anecdotal incidents related, the functioning of most nuclear reactors is fairly routine and more problems are found with the non-nuclear parts of the plant than with the nuclear reactor and its related systems.

Non-nuclear Problems of Reactors

Nuclear plants are less efficient than certain fossil fuel plants because the temperatures must be kept down to avoid damage to the fuel elements. This has led certain steam technologists to bemoan this retreat to 1905 steam technology. In addition to this, the cooling towers and/or other heat disposal methods have to be larger

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(more expensive) to take care of this unused heat. To get rid of the heat, it has to be released to the air or dumped into some river, lake, etc., which causes increased growth of plant life which decreases the oxygen supply for fish and other aquatic life which goes on and on to disturb other parts of the ecology.

Refueling and Transporting

Current practice allows the refueling of the reactor by changing one-third of the fuel elements every year. These fuel elements still contain much U-235 and even some Pu-239 plus their inventory of fission products. They are allowed to cool off in large pools of water for several months at the reactor site and are then supposed to be shipped to a fuel reprocessing plant for cutting apart the fuel elements and rods, dissolving the radioactive UO_2 pellets, and extracting and separating the uranium and plutonium. After this the uranium goes through the gaseous diffusion cycle again to be fabricated into usable fuel pellets. The transportation of fuel elements is done in special containers tested for resistance to fire and being dropped from various heights. However, try as one might, one cannot tell from the literature if they have been tested for having a locomotive smash into them at full speed. One of these days, ERDA or NRC (Nuclear Regulatory Commission and the regulatory part of the old AEC) will test this situation out. Hopefully it will be before one of these shipping containers is actually stalled on a railroad track and we find out by harsh experience if it can withstand the impact.

Hijacking Possibilities of Nuclear Fuel and Wastes

With the increase of terrorism in modern life, there is increased fear that nuclear fuel and wastes could be hijacked during transportation and/or storage. Something like that could happen.

There was a time in the U.S. when almost everything connected with nuclear energy was behind high fences with many guards to insure protection of the "secrets". Such a situation could recur. It will mean added expense and thus cost to the society (which is exactly what the terrorists want). The many destruction and hijacking scenarios one sees on TV or reads in stories are pretty illogical and are guaranteed to bring about the death of the hijackers in quick order. However, in reality, just because a group of people may be collectively insane doesn't mean they are stupid. With the proper brains and equipment almost anything can be done. As W.P. Bebbington states in a recent article[2] in *Scientific American*, instead of going to all the trouble of stealing and purifying bomb material and then manufacturing an atomic bomb, why not just go and steal a bomb? It is possible to devise many disaster scenarios. Why encourage terrorist groups with ideas they might not have thought of themselves?

Guards, fences, alarms, doctoring

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of transported radioactive material to make recovery of fissionable material very, very difficult without the most sophisticated procedures and apparati seem to be the most useful defense barriers at the present time.

Reprocessing of fuel elements

The nuclear utilities find themselves in a very perplexing situation. By law they are supposed to send their used fuel elements to a reprocessing plant within five years of withdrawal from a reactor. Unfortunately at present there are no civilian reprocessing plants in operation. Not until 1983 will the Barnwell, S.C. plant be on line. It will have more than enough business to keep it operating.

Part of the problem comes about because a large reactor vendor decided to build a reprocessing plant at Morris, Illinois near a number of its boiling water reactors. A plant was built at an admitted cost of $67 million dollars based upon a chemical process that worked beautifully in the laboratory but developed many difficulties at the commercial stage. In the race to save pennies and lose dollars, no bypass systems were provided and so to fix any part of the plant it was necessary to shut down the entire plant. The plant has now been abandoned. The utilities that planned to use this plant are suing the vendor. Again the courts will decide. Regardless of the verdict, used fuel elements cannot be processed in unbuilt and nonoperating plants. This part of the nuclear cycle is in such poor shape, it may be said to be nonexistent. It may be necessary to store used fuel elements at some national storage area until sufficient reprocessing capacity is built.

Radioactive Waste Storage And/Or Disposal

The fission products and irradiated materials associated with nuclear reactors are radioactive with varying half-lives. Such wastes have been handled by two contradictory methods: (1) dilution, and (2) concentration. Wastes discharged to the biosphere after fairly short storage periods are usually diluted by air and water to concentrations equal to or below permissable levels. Other wastes (solid and liquid) are being stored at reactor sites until the government decides upon a national waste depository area. In terms of bulk the total high level wastes to the year 2000 AD probably wouldn't exceed a dozen football fields but would consist of billions of curies in activity. Each curie represents 3.7×10^{10} disintegrations per second. High level liquid wastes from the weapons program are stored at Hanford in the state of Washington and the record of leakage of such wastes have made it mandatory for closer monitoring of the wastes. Suggestions have been made to send the wastes to the Sun by rocket, store them in orbit around the Earth or on the Moon or in rock salt geologic formations or concentrate them down into solids and convert them into glasslike pebbles that would

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be stored as solid wastes.

A civilization that can explore the solar system and send men to the Moon should be able to handle the problem of nuclear wastes. Since the heat of these radioactive wastes has to be dissipated anyway, couldn't this heat be used to desalt ocean water to provide drinking water for those areas that need it? Nuclear wastes are an unwanted burden today. It may well be possible to use these wastes to benefit mankind in a future time.

So we have come full cycle, starting with uranium oxide being mined from the ground and back to nuclear wastes being stored in the ground. This sketchy outline of the cycle has not looked at all the many problems (shipping nuclear reactors, fuel and expertise aboard) nor has it looked intensively at any one of the problems but it should give some general idea of what is happening in the nuclear industry at present.

It is relatively simple to point out the mistakes and blunders inherent in most human activities. It is another matter entirely to make sound, feasible, constructive suggestions that will improve the situation. The editor of this magazine has said, "Pretend you're the czar of the nuclear industry and you could do anything you wanted to do. What would you do to improve things?"

It must be understood that it is a government-industry combination that is properly termed "the nuclear community". This nuclear community cannot have a monopoly of time and/or money to find the complete solution to the world energy shortage. Other alternatives must and will be considered along with nuclear energy.

Suggestions for the Nuclear Community

1. Restructure the entire ERDA upper echelon. Replace with middle staff where possible and/or new people out of school. Since the bulk of the present upper staff have a vested interest in nuclear matters, how can they properly evaluate solar energy, geothermal power, windpower, tidal power, etc.? No more of this 90% of the budget to nuclear and 10% to everything else. ERDA is supposed to stand for *Energy Research and Development Administration*, not *Nuclear Energy Research and Development Administration*. Insure a good mix of hard-nosed practical types and lessen the influence of the paper shufflers.

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2. Build and run the LOFT test or LOCA test or whatever they are calling it these days. Build it as quickly as possible working a twenty-four hour day, seven day-a-week schedule if necessary. Run the reactor a few months to build up the fission product inventory in the fuel elements and run it to destruction! If the results show that the present safety systems are ineffective, back to the drawing boards. If the results show that the safety systems work as designed and built, then the antinuclear community will have one of its main concerns

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satisfied. Since a lot of time and effort has already gone into this test over the past decade, it'll settle the issue once and for all and allow these personnel to be put to work on other problems.

3. Inventory the energy resources of the U.S. and the world. Let's find out what is on hand in this country and other nations. How can we make meaningful *long range* energy plans unless we know what we have on hand? Much of the information presently on hand is conjectural and/or based on private industrial extrapolations. Very serious problems could easily arise if such conjectures were overly optimistic.

4. Formulate a coherent, relevant, open-ended national energy plan with proper emphasis on: fossil fuels, nuclear fuels, solar power, geothermal power, conservation, ecological safety, increased efficiency of all energy consuming devices, etc. This plan should be flexible in that items showing little possibility of being useful should be dropped and funding transferred to viable possibilities. No scientific WPAs with its corps of proposal writers and file cabinets full of unread and unreadable reports. No urging of the population to conserve electricity and raising their rates to allow the utilities to keep their old profit rates. Let's give tax and cash bonuses to industries, companies, communities, people who really do try to save energy. If Sweden with its nontropical climate can use one-third less energy per capita than we do, it's obvious we can learn from them.

Much of this planning can only come with the participation and cooperation of Congress. It is amazing how fast politicians move when people get angry. Let us hope this happens before homes are heatless and lights are out.

5. Stop the Paper Mills. Technological man is drowning in an ocean of paper. In all industrial-scientific communities—not only the nuclear one—there is an enormous overabundance of paperwork. There are memos about memos about memos. There are annual reports, semiannual reports, quarterly reports, monthly reports, weekly reports, hourly reports, preliminary reports, supplementary reports, post supplementary reports, reports about reports. There are experimental reports with results about experiments that haven't even been run yet but no one told the report writers. It is a lunatic situation. In fact, Wood's rule number one is that the larger the report, the less the information. Let's give a prize to the department, bureau, what-have-you in the nuclear community that puts out the least amount of paper in a given year and that gets its work done and states the facts clearly.

Certainly there is always necessary paperwork. Good laboratory notebooks are essential in scientific work. Short cogent reports about successful and unsuccessful experiments are the lifeblood of science and technology.

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Simple honesty today requires that *simulated* experiments run by means of computers be so labeled, as differentiated from *real* experiments run with actual hardware in laboratories and/or experimental stations. There seems to be a blurring between these two types of experiments. This is not to say that one type is necessarily more important than the other. Some experiments because of their nature can only be run by computers. It is a question of what is actually meant when using those very powerful words, "By experiment, it has been shown . . . !"

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6. Use in-house capacity to the utmost. Some administrative types feel that an outside report from a consultant or laboratory is preferable or better than work done in-house. This feeling seems endemic in the nuclear community as well as elsewhere. It is almost a mark of stupidity to listen to some organization heads brag about spending many dollars on outside consultants to get a report or result which their own people could have obtained for them in half the time and at a quarter of the cost. ERDA has under its operational control some of the finest laboratories in the world with staffs to match. For it to send out subcontracts to consultants which pay the consultants more than the ERDA people for the same work and results is senseless. Only the lack of expertise and/or equipment in an organization can justify sending material out, or if it is necessary to have an independent check on work.

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7. Reactor Improvement Program—The trend at present is to build standardized nuclear plants. No substantial change in plant design can be expected for some years. With no incentive for change there can be few innovations. Since improvements are difficult to make in a standardized reactor building program, a number of experimental reactors should be built at the Idaho National Engineering Laboratory and be used to improve every aspect of reactor operation and construction. Much information squirreled away in the Navy nuclear submarine program could be used to assist in the light water reactor program. Reactor improvements could be solicited from anyone, anywhere. Any improvements found to be of practical value would result in a substantial monetary award to the originator. None of this $25 Savings Bond and a pat on the head. Awards are either an incentive or an insult.

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8. Send the Nuclear Regulatory Commission (NRC) into the field. Take away half the desks from the NRC and send the personnel into the field to investigate nuclear reactors and nuclear installations, both public and private. None of this phoning to let some organization get all their books and work areas into good shape because the investigator is coming. Investigators should come at odd hours, middle of the night, weekends, holidays—any time. This is not to

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trap people but to insure that regulations are being obeyed at all times, not just at special inspection times. After suitable warnings, substantial fines for violations should be levied and collected. The elimination of "pony shows" (the prettying up of work areas to impress bigshots) would be a blessing to the entire industry and ease the burden on busy people who don't like to stop important work for nonsense.

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9. Energy Users Improved Efficiency Program. There should be a department that investigates every possible energy user to see if its efficiency couldn't be increased. If we could increase the efficiency of our automobiles and trucks, think what it would mean to our oil supplies. Much energy is used in the heating of homes and businesses and in the transportation of goods. Proper construction and heating of dwellings would extend our oil and coal resources. Detroit is not breaking its neck building more efficient trucks and autos so someone else will have to do it. Here again, the granting of prizes might be very effective in getting ideas in improving efficiency. Coupled with this program could be a real impartial information bureau that would answer every question as impartially as possible. If answers were not available to certain

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questions, *that* would be stated rather than the subterfuge one usually gets from the bureaucracy.

10. Form a Bitch & Gripe Department. The resignation of a number of middle staff and lower staff people at NRC is disquieting and disturbing. They say that NRC is not doing its job of insuring the public safety in regard to nuclear reactors. Most people take the easy way out when confronted with such problems, they ignore the problem and pocket their salary. Our system does not take kindly to "boat rockers". It is usual for supervisors of malcontents to get rid of them at first opportunity or to tell them to resign if they're unhappy. Yet it may be that such people are the most conscientious of workers and have a true concern for the public. There must be a way for such people to be heard and to be rewarded if correct. Questions should be clearly and accurately formulated and answered with equal care. Both parties to a dispute should be warned that unless there is resolution of the problem, the entire discussion will be printed and made a part of the public record. Both sides usually become extremely diligent when faced with this alternative. Honest dissent deserves to be rewarded. Even as these words were written, NRC has taken steps to hear dissenters.[3]

11. Form a temporary waste disposal area on Federal property. In a few years, the storage of used fuel elements at various reactors is going to be a serious problem. To ask the various states to allow a permanent waste disposal area to be built in any one of them is to betray an ignorance of politics. No politician that has to be elected is going to go to his people and say, "Our state is going to be a garbage dump for the radioactive wastes of all the others." Let's forget the absurdities and get a temporary facility built on Federal land and work out the best possible waste product storage methods. When and if a permanent storage area is decided upon, move the waste products there if possible. It is wise to remember that today's garbage might be tomorrow's treasure. Also if there is not sufficient reprocessing capacity in the private sector, the government will have to provide it.

12. Convert the JCAE into the JCE. The Congress of the U.S. has watched over and influenced nuclear matters by means of the Joint Committee for Atomic Energy. Now by merely omitting one word, it is time for this committee or its successor to move on and extend its range of expertise and influence. Self-regulation in money matters is always desirable but it is good to have a watchdog committee that continually asks those questions, why, how, who, when, and where. The JCE represents a way by which politicians talk to scientists and scientists talk to politicians. Let us hope that both sides are asking the proper questions.

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13. No more preliminary authorizations for nuclear reactors. Since there are such long lead times necessary to obtain reactor parts, utilities try to get a jump in time by getting a preliminary authorization to build a nuclear plant and if all the lengthy paperwork and legal obstacles are overcome, to get a final authorization and finish the reactor. When a utility spends hundreds of millions of dollars on a reactor project, the economic, political and governmental pressure to let them finish is simply fantastic. If the utility has to write off its investment, you know they are going to get every cent back out of their customers, one way or another. If a utility makes a proper application for a reactor it should either be granted or refused. It is unfair to keep people up in the air over such expensive projects.

The above thirteen steps, if properly implemented, could help put the nation on the path to a rational, logical energy policy. Even these steps would not be necessary if we had industrial, political, scientific, and technological leaders who were embued with a sincere desire for truth and a selfless dedication to humanity. However, since we must deal with imperfect men and women lusting after money and/or power, it is necessary to have rules and regulations for the public good. ■

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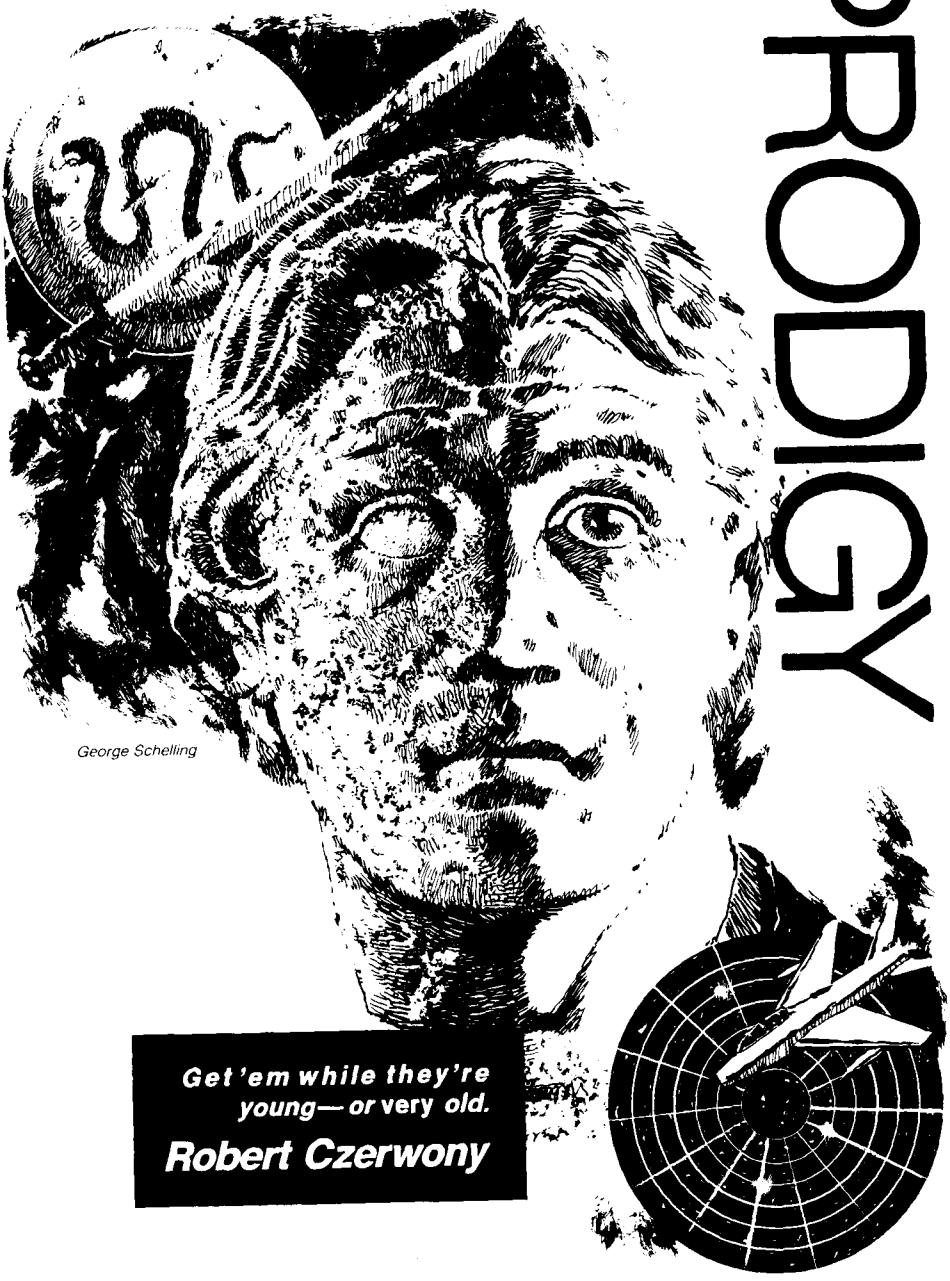

George Schelling

Get 'em while they're young— or very old.

Robert Czerwony

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The viewing screen flashed, Rassoff's fingertips at the control. Two columns of signatures appeared, each with a neatly printed date and bright red circles and notations pointing to various technical aspects of the handwriting under study. In three places, these being indicated by green arrows, several lines of script also appeared with the signature.

Rassoff cleared his throat, sipped from a nearly empty glass of water.

"You see before you the crucial block of signatures dating from the winter campaign in Poland in 1806. All the samples here show identical deviations, some present for the first time in Napoleon's handwriting, and all culminating in *this,*" Rassoff stressed the word, raising his pointer to a narrow, jagged line of script in the lower right corner of the screen, "which Bonaparte penned only two days before the battle of Eylau in February 1807, where, also for the first time, he will be guilty of serious misjudgments resulting in heavy casualties and very nearly a defeat. The causes of the errors," Rassoff said, his pointer snapping down hard on the last lines of writing, "can be seen here, in his handwriting, long before a single shot is fired, before the French and Russians crash together in a frozen corner of Poland."

His audience watched in silence. Gallagher, Foreman, and Orinsky of the CIA. Mendel and Restovich of the National Defense Agency. Mason, Caldwell, and Bertram, specialists in psychoanalysis. Edwin Caine, the President's man. A collection of others of equal stature, all experts in their own fields. Cream. The best. All wore the yellow lapel pins codemarked 'Prometheus'.

"Several points are immediately evident. Note first the disintegrating strokes." He flashed the viewer into a higher magnification, then higher still, moving from one letter to the next. "Each single stroke actually consists of many parts of varying width. This is the first known indication of Bonaparte's apoplexy, the condition responsible for his chronic instability during the period 1809-1813, and ultimately his final defeat at Waterloo." The screen reverted to its original format. He pointed to the last line of writing. "The tendency of the script to a severe forward slant shows an element of manic depression, as does the extreme background involvement—the unnecessary filling up of space on the paper in a confusing manner."

The next slide also showed two columns of lines and signatures, but with widely varying dates and noticeable differences. "On a comparative basis, his deterioration since the campaign of 1797 is clear. The increased angularity of the script, the lengthening of the forward stroke of the capital 'N', the excessive pressure, deteriorating rhythm, the regression from a balanced style of garlands and arcades to this ragged mix of arcades and threads—all are signs of extreme mental pressure, fits of depression, hypertension and apoplexy.

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"What you see, gentlemen, is a giant—an extremely powerful and dangerous man—on the brink of decline and total collapse."

"Excuse me," a deeply tanned man in the third row said as he stood up. "George Garrett," he said, announcing rather than stating his name. The introduction was unnecessary. An extremely powerful and influential man after three terms as Senator from New York state, he had quit politics as he was being seriously considered for the Vice-Presidential nomination. Maintaining a nonelected position in politics (during the last administration he was the top presidential advisor, and even now was a frequent visitor to the White House and top military officials), he had steadily grown in power and notoriety. He'd also become the patron of a number of incredibly successful discoveries—a young playwright from New Hampshire and a growing number of fledgling politicians who came to national prominence overnight—Stephenson, who held Garrett's former seat in New York, Prescott in Ohio, and Stahl in California being the most impressive. Fresh from this series of victories, rumors abounded of his reentry into politics, but Garrett refrained, seemingly more content with being one step removed from the political spotlight as his appointees moved higher into the power structure.

"One extremely important question," Garrett said. "Can this man's writing, this signature, be reproduced, *exactly?*"

"Forged, you mean? By someone today?"

"Precisely," Garrett smiled. "Yes."

Rassoff nodded, indicating that he understood. "That is not possible. The evolution of the writing, the immense influence of the personality, of the subconscious, makes that impossible. Detailed study under magnification can distinguish a forgery from the original—without doubt."

"But there could be similar styles of writing?"

"Of course."

"Produced, perhaps, by similar attitudes, pressures or mental states?"

He was answering the questions himself, Rassoff thought.

"Yes."

"But not identical?"

"Not identical. Any letter with *this* style, pressure, spacing, and characteristics, regardless of actual message or content, can only have been written by one man—Napoleon Bonaparte."

It was late in the evening when Rassoff finished the last of the day's schedule and drove home through the night, down Indian Head Highway, then across the Potomac into Virginia. As he pulled into the drive he noticed a car, a huge black Continental, waiting for him. As he watched, George Garrett stepped out, beamed a great, toothy smile and walked toward him.

"Dr. Rassoff," he called. "Forgive me for stopping in unannounced, but I must speak to you."

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Rassoff neared him hesitantly. Off-hours discussion of intelligence concerns was, to put it mildly, *not* encouraged.

"I assure you, speaking to me can only work to your advantage," Garrett said loudly with a polished, reassuring wave of the arm.

Rassoff eyed him uncertainly. "My field of study is not usually an intelligence concern," he said. "Not on a national scale. I admit to being curious about it. More curious still as to the choice of handwriting specimens—and for the possible reasons for your being here."

Garrett smiled again. "As to the choice of samples, I had something to do with that. As for my visit, there are several reasons," he said firmly. "You know the project is slated to be dropped."

"Did you also have something to do with that?" Rassoff asked on impulse.

Garrett showed no signs of acknowledging the question and went on. "There are many people who do not truly realize the importance of those afternoon sessions. I happen to believe you have more wisdom than that."

The doctor thought he saw more in this than Garrett had wanted to show. Rassoff had long suffered from the illusion that in dealings with others he was always more perceptive, somehow had the upper hand. He motioned Garrett to the door, then into the book-lined den. "I only know enough about the actual purpose of 'Prometheus' as is necessary to plan my lectures and research. *Why* the CIA cares about Napoleon's handwriting . . ."

"*I* care about his handwriting," Garrett interjected. Then he reclined comfortably in one of Rassoff's high-backed leather chairs. "Have you anything to drink?" he asked.

"Sherry?"

"Fine."

Rassoff clinked ice, waited.

"You know there's a war coming," Garrett said.

Rassoff said nothing and stared at the man.

"A number of wars actually. Of course you know. Venezuela. Rhodesia. South Africa. Soon the Middle East again." Garret looked at him quizzically, as though that statement should have cleared away any mystery. Carefully stressing each word, he said, "They are looking for generals."

"The handwriting?"

"A personality profile—that is as far as they can see."

Rassoff's eyes sharpened. "You're saying there's more to it?"

Garrett sipped at the sherry. "There is. If I told you that William Destrie was extremely interested in your graphoanalysis of Bonaparte, would that mean anything to you?"

"You knew Destrie?"

"Quite well. He worked with me on a number of cases before he was killed so tragically."

"He was probably the number one man in the field."

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"He was," Garrett said simply.

"To know that he was interested in my work is a tremendous compliment. What did you do together?"

"It began with the Largent case."

"The reincarnation probe?"

"Precisely," Garrett beamed. "Yes. He was working with J. A. Martin then. They put a Canadian, Philip Largent, into a deep trance and unearthed a prior life, a different nationality, language. Or so they believed. Much of it was never released. They got nearly 300 pages from him; place names, dates."

"I didn't know that," Rassoff said.

"Some of my people are *still* running the leads."

"Your people?"

"Mine."

"Why?"

"In the last days of the experiment Destrie got a number of handwriting samples from Largent. From his previous life, that is. He was a Scottish fisherman."

"And?"

Garrett answered slowly, spacing his words and leaning forward in the chair. "Late in his Scottish life his writing began to show an artistic inclination—open 'i' dots, embellishments—then he drowned when his ketch was lost in a squall. The same signs recurred quite early in his next life, as Philip Largent, but were more pronounced, as though the continuum had never been broken. And, of course, the present Philip Largent is an artist, specializing, you may be interested to know, in seascapes, waterfronts, and fishing towns."

Rassoff took a long draught of wine, his mind playing with the implications.

"Of course," Garrett went on, "reincarnation is thin ice, politically. The CIA people would scoff. Even of those willing to listen, few have concrete answers. The point is, Rassoff, that it either *is* or *is not*." Excited, he began to speak faster. "If it does exist, does occur, and you know for a fact that handwriting reflects past experience, subconscious motivations . . ." He stopped short. "Doesn't that give you any ideas about 'Prometheus'? *Don't you see?* You're the most valuable man in the lot, but they don't have any idea of *why!*"

"Did Destrie seriously believe that . . ."

Irritated and impatient, Garrett interrupted. "They're looking for someone who *thinks* like a military genius," he said loudly, "when I can give them the real thing!"

Rassoff was out of his element, off balance. "What did Destrie think of this?"

Garrett produced a small folder from his coat pocket. "This is the unpublished section of the Largent file. Study it tonight. Decide for yourself."

"What then?"

"Caine has soured on 'Prometheus' and will sway the President. It will be scrapped within the month. I shall be back tomorrow for the file, however you decide. If you think I'm wrong, that will be the end of it. But if you

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believe, as I do, that Philip Largent did in fact have a previous life, that his accomplishments in this life can be tremendously enhanced by using his past but now subconscious talents, that his handwriting can be a vital clue in the process, *then* you may want to join me."

"Join you in what?"

Garrett smiled and placed the empty wine glass on the table. "A very special manhunt," he said. "I will explain more after you decide, but as you study that file, *think*. Think what it could mean if the past *can* be tapped."

Rassoff studied the papers that night, brewing a fresh pot of coffee every few hours until 4 AM. He searched for something to disprove Garrett's belief, first with a sense of awe, of bemused curiosity, and when nothing appeared to demonstrate the infeasibility of the idea, with an increasingly panicked intensity. By 5 AM he sat bleary-eyed, defeated. There was nothing—not only nothing to show a break in the continuum, but the trends and changes had held consistently, as though nothing had happened, across the break in time Rassoff knew was Largent's death in Scotland.

They talked the next evening, a short, cursive conversation between two men who *knew* why empires rose and fell, why history repeated itself, Garrett making a claim, for the first time, to the advantages of controlling it. Rassoff wanted specifics. Why the urgency? Was Largent the only proof? The whole time he wondered, why Garrett—Garrett of all people—was so intensely involved?

Garrett watched his enthusiasm swell, sat quietly through the barrage of questions. When he was certain that Rassoff was finally, irretrievably captured by the idea, he said, "Tomorrow I'll stop by your office—about 2:30. Then I'll *show* you why I'm interested, and then you'll know just how far and high this thing can take us."

Garrett arrived punctually at 2:28 PM.

"There is someone I'd like you to meet," he said, ushering in a young man, steely-eyed and intense. "This is E. Lloyd Hart, an applicant to West Point," Garrett said with a flourish of his arm. "May I introduce Mr. Karl Rassoff, a good friend of mine and longtime associate in the higher branches of the Department of State."

"I am pleased, extremely pleased to meet you, Dr. Rassoff," Lloyd Hart said, in a somewhat nervous but obviously full, strong voice. He reached out to shake his hand and Rassoff felt confidence, enthusiasm.

Garrett bade them be seated and smiled expansively. "I have been looking for someone like Mr. Hart for a very long time," he said. "For someone *exactly* like him, Dr. Rassoff."

Rassoff leaned back nervously, wondering whether Hart had come under the scrutiny of 'Prometheus' or

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was of interest to Garrett alone.

"I would appreciate it, Dr. Rassoff, if you would study this essay of Mr. Hart's and compare it to this other work of similar character."

Garrett handed him two thin folders.

"I have chosen to *personally* secure his appointment to West Point, so impressed am I with this young man's potential."

The first folder Rassoff opened and placed flat upon the desk top. It was Hart's. The essay, entitled "On the Church and State", was written in a strangely troubled hand which Rassoff found to be strikingly familiar. He opened the second folder and found a photocopy of a personal letter written January 12, 1798 and signed . . . Napoleon Bonaparte. He was stunned and swayed slightly in the chair. For a moment he felt he might lose his balance. The signatures blurred before his eyes. He felt disoriented, as though he'd been standing in the surf and had been hit by a heavy, curling wave. He steadied himself, placed the two scripts side-by-side and pulled a lighted magnifying lens across them both.

"Dr. Rassoff often finds that handwriting is an indication of strong character traits," Garrett explained to the startled Lloyd Hart. "Aggressiveness, leadership, sometimes even genius," he said coolly, "all in the turns and twists of a pen."

Rassoff concentrated on the sheets. For the most part the scripts were identical, or *could* be identical—he would have to study carefully the effects of one being in the French style as taught 1770, the other contemporary American, and of course, the important nuances of the English pronoun 'I' were completely lost in the French 'Je'. Still, the rhythm, movement, pressure, many of the letters and connections were uncannily the same.

"Mr. Hart," Garrett said, "has strong, clear *political* convictions as well as military aspirations. He is an extremely intelligent young man, one I believe our nation cannot afford to do without." Rassoff's eyes scanned the pages hungrily, looking for what could not be found in the Largent file—a break, a flaw, a crack—something to show that E. Lloyd Hart was

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nothing more than a young American on his way to West Point. Garrett continued to talk. "Congressman Alliegro, who should have appointed Mr. Hart himself, has determined upon an attractive blonde. That's three in three years for Mr. Alliegro. Signs of the times."

Rassoff looked up blankly. Of course, detailed study was needed, but the likenesses, the incredible, impossible likenesses . . .

Garrett, seeing his indecision, jumped to his feet, laughed, and shook Rassoff's hand. "Good! Good!" he cried. "We must be going now, Karl. I'll call you tonight."

Hart, bewildered, turned and walked out with Garrett, leaving Rassoff alone. Terribly alone. For yet another moment he stood dazed, looking down at the letters, then snapped the folders shut, reached for his coat and told his secretary to cancel all appointments for the afternoon. He would be out of town, he said, quite unavailable, and went home.

By dawn the next morning he knew that there could be no mistake. The letters had been written by the same man, but there *were* changes—subtle developments—the writing had matured, grown beyond the tempests of depression and apoplexy. He had mellowed, acquired a sense of timing, a patience lacking in his predecessor. Ominously, it had been achieved with no lessening of ambition or desire for power.

Garrett was elated and pushed for Hart's appointment, to Lloyd Hart's never-ending gratitude. While Rassoff struggled with himself, realizing that his involvement with Garrett was already too deep, wondering whether Destrie's automobile accident had not been more than simply that, the funding for 'Prometheus' was discontinued. With a shudder Rassoff thought that Garrett's arm had become long indeed. There was nothing—nothing—that Rassoff could do.

He neither saw nor heard from Garrett for two weeks after the close of the project, until one biting November night when he stepped into Rassoff's study with a prided, Everest-realized air, one of his dossier folders held at his side. He had been celebrating. Tousled hair, slightly uneven step, glimmering eyes all showed that, but when he spoke the voice was hard and cool as always. Precise. Professional.

"Young Mr. Hart has been accepted at West Point. He is on his way," he said, leaning back majestically in the same leather chair, "and so, Dr. Rassoff, are we."

"No second thoughts?" Rassoff asked, handing him a snifter of brandy.

"None." His face was deadly serious, brows furrowing gargoylelike, tongue pointing, protruding slightly. "There are only two ways to go with a man like that." He spoke with a ferocity, an animal intensity Rassoff was seeing for the first time. "Ride up with him, or stand in his way and be crushed."

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They sat in silence then, Garrett with lowered head, recognizing a still moment in history—the silent awesome opening of a great, steel-hinged door. Rassoff felt a sudden twinge of panic. What if Hart and Largent were not alone? What if they were not the only ones? What about the rest of Garrett's meteorically successful appointees? Perhaps these recurrences were like epidemics, seed appearing virulently, everywhere, at once.

"Remember the riddle of the ultimate weapon, Rassoff?" Garrett asked, firelight glinting garishly off his teeth. His wrist moved in tiny circles, slowly spinning the brandy. "The answer was man himself. A bit trite but with a sharp grain of diamond-edged truth. For years the American arms industries have lavished their best hardware on second-rate governments with military incompetents for generals." He paused for a second, sipping the brandy. "One day after the sponge-brained South Vietnamese army collapsed overnight, I decided that this approach was all wrong. *Weapons do not win wars,"* he said with deliberate force, and smiled broadly then with the answer to the riddle. *"Men do."*

Rassoff felt numbed. The thought of eighteen years of Napoleonic war and conquest stretched out before him. Seed spreading virulently.

"Did you know," Garrett went on, "that elements of the Israeli government have been secretly in the market for a new field commander since the '73 war? I admire them, Rassoff. As a nation they never repeat a mistake. Masters of the preemptive strike. An able people with a fine army, in search of the ultimate weapon." He laughed loudly, downed the brandy in one gulp and slapped Rassoff good-naturedly on the shoulder.

"We're flying to Europe Tuesday. Greece. That gives you four days."

"Four days . . ." Rassoff stated blankly.

"Study these carefully," he said, handing over the folder. "This will be more difficult than the Hart case. The time differential is greater."

Rassoff's hands shook violently as he opened the folder. The first pages were typed records of conversations between Garrett and Israeli intelligence. There followed fifty pages of letters, forms, documents, all handwritten in contemporary Greek.

"We are due in Athens at 11:30."

The last thirty pages were photocopied. Ancient Mediterranean. He looked at them closely. Macedonian. About 400 BC.

"There is someone there I want you to meet. If all goes well, we'll be flying then to Tyre, to refresh his memory, then to Tel Aviv."

His hand stopped on a page with an official appearance and seal affixed to the lower left corner. The seal glared out at him, became recognizable, as out of a distant, clearing mist. The seal of the man who with a small but well-trained army had once conquered Egypt, Syria, Iraq, all of the Persian Empire, the entire Middle East. The seal of Alexander the Great. ■

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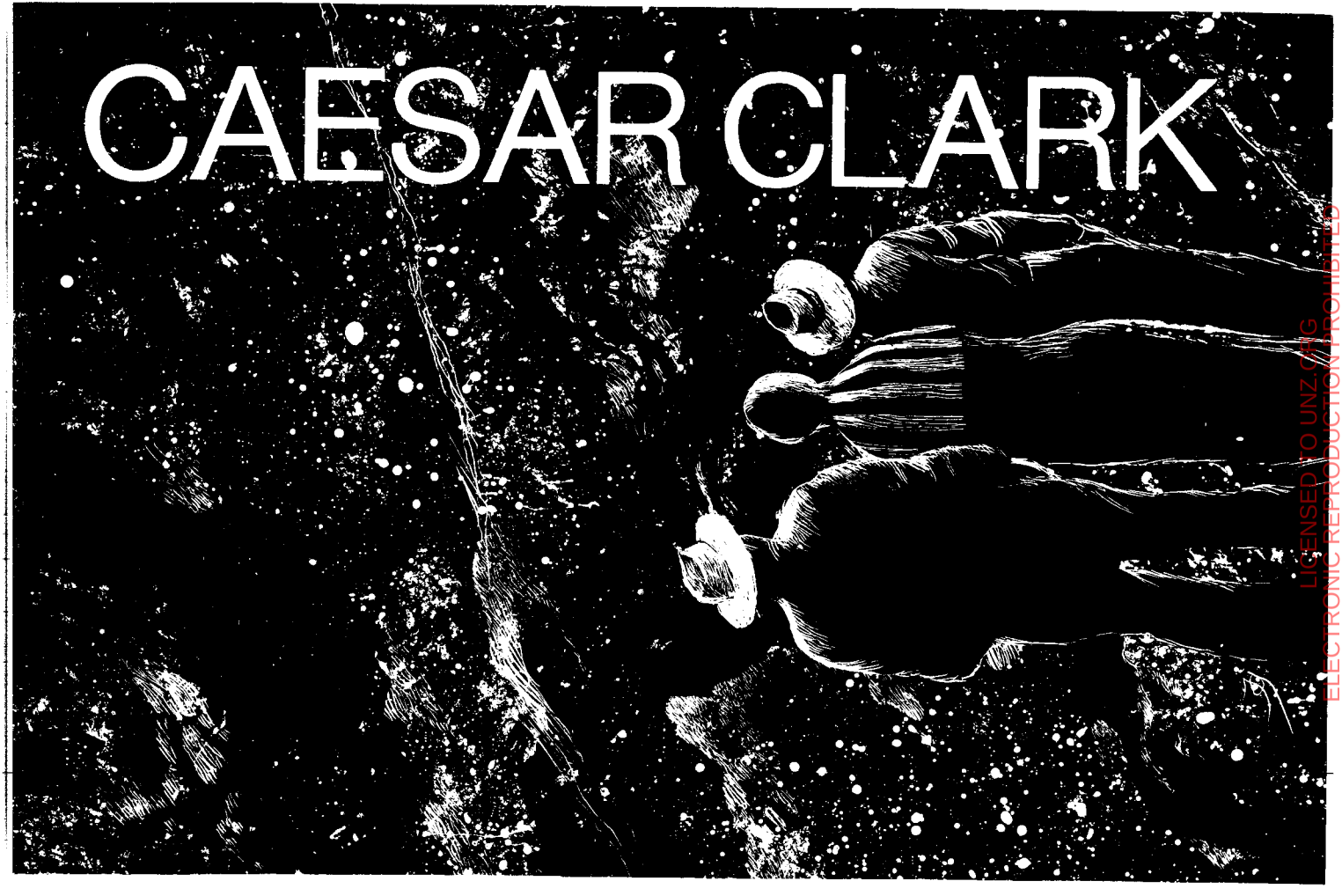

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"*One year?*"

Domingo Menéndez Consuelo, alone in his office, stood hunched over the ancient line printer in the corner, watching helplessly as the unexpected new dispatch from the north clattered out. He felt a growing dry tightness in his throat as he read.

HIGHEST IMPORTANCE IN-

The captain of a ship must have absolute power. Even when the "ship" is our entire planet. Even though the "captain" doesn't want the power.

Stanley Schmidt

STRUCTIONS TO ALL REGIONAL AND NATIONAL HEADS OF STATE, it began, after the curt attention-grabber that had triggered his shock. READ CAREFULLY AND ACT PROMPTLY.

We're busy, he protested silently. *We're terribly busy.*

But the machine clacked heedlessly on, spewing neatly folded paper into the output bin as fast as he could catch its drift.

A NEW AND MUCH LONGER PHASE OF ACCELERATION WILL BE INITIATED AT THE END OF ONE YEAR. THOUGH THE INCREASE OF THRUST WILL BE SPREAD OVER SEVERAL MONTHS, THE ONSET WILL BE ATTENDED BY PROBLEMS SIMILAR TO THOSE OF THE LAUNCH.

It'll take longer than that just to dig out from those, Menéndez Consuelo thought. *It's only been . . . What? A month? How can we even think about new ones now?*

. . . EARTHQUAKES, the printer continued, ignoring his thoughts, FLOODS, AND IN SOME REGIONS VOLCANIC ACTIVITY. PREPARATIONS TO MEET THESE CONTINGENCIES MUST BEGIN IMMEDIATELY. EVEN MORE URGENTLY, IF POSSIBLE, WATER HOARDING MUST CONTINUE AND RECYCLING BE BROUGHT INTO FULL OPERATION AS QUICKLY AS POSSIBLE. THE WORLD GOVERNMENT WILL STRIVE TO DISSEMINATE RECYCLING PLANTS AND INFORMATION AS RAPIDLY AND EQUITABLY AS POSSIBLE. MEANWHILE, FOOD MUST BE RATIONED STRINGENTLY, BEGINNING NOW. REPEAT: NOW. AGRICULTURE IS ALREADY DEAD IN MANY AREAS AND WILL NOT LONG SURVIVE FARTHER SOUTH. RESERVES MUST BE STRETCHED TO THE UTMOST IF EVEN THIS MODEST DELAY IS TO BE POSSIBLE.

LOOKING BEYOND, OTHER AREAS MUST BE ATTACKED SOON, BUT WITHOUT QUITE THE EXTREME URGENCY OF THESE. AIRTIGHTNESS OF DWELLINGS IS NOT QUITE AN INSTANTANEOUS NEED. A COMMUNICATIONS NETWORK OF UNPRECEDENTED QUALITY . . . NEW SYSTEMS OF TRANSPORTATION FOR

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THE LIMITED TRAVEL THAT WILL BE REQUIRED AND PERMITTED WHEN THINGS GET BAD . . .

When things get bad, Menéndez thought numbly. *As if everything's fine now.*

DETAILED INSTRUCTIONS FOLLOW, REQUIRING IMMEDIATE ACTION. FIRST . . .

Menéndez walked away from the printer, stunned. The instructions could wait, at least until he had them all on paper. He walked to the corner windows and looked out, trying to tune out the clattering mechanical devil behind him.

He looked out, across the cluster of makeshift tents and shacks in the Parque Central at the city and volcanoes beyond, resting under a sun that was too low in the sky. (But at least it was there. Up north, they said, the sun never even rose any more.) Over to the left, he could see another part of the Palacio Nacional, slightly damaged. Beyond that was the central market, forced into the streets by damage to its buildings for the second time in Menéndez's life.

He still vividly remembered the first time. He'd been a boy of eight or nine then, and when his house fell down he and his family had taken to an improvised shack of cardboard and burlap and corrugated tin, on the hillside below the Ermita del Carmen. A shack much like those that now dotted the park in front of the palace.

He could identify with those people; he'd been through it himself. He'd been proud of his people then for the way they pulled through and never lost their spirit, and he was proud of them now. The quakes last month had been just as bad—four decades had allowed severe strains to build up again—and the response had been just as admirable.

But there were limits to what they could do. They were only human, after all. Even if they were humanity at its best, it made no sense to expect them to go through all that less than one year after such a disaster.

Menéndez felt the anger welling up in him again—the anger he had often felt toward the increasingly meddlesome UN under Franz Gerber, and then more recently and more often and more strongly toward this character Clark who had somehow deposed Gerber. Menéndez still wasn't clear on how that had come about, or just what Clark had to do with the quakes and all that had come with them.

But it was pretty clear that he was somehow behind the atrocities now pouring out of the line printer. To Menéndez, they seemed crazily, cruelly unnecessary. But very soon, one way or another, he would have to act on them . . .

A day earlier and a thousand miles away, Henry Clark had stared across an oval table at two tall aliens with much the same dismay. "*Half a gee?*" he echoed incredulously.

"Would you prefer three thousand years?" Beldan asked. His olive-bronze face, with no nose between the big red eyes, loomed over the humans, its solemnity contrasting oddly with the flamboyant iridescence of his robe. "Three thousand years," he repeated emphatically. "That's how long it would take at our present acceleration. We—the Kyyra—can't

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accept that. I wouldn't think you could either."

"We don't want to," Clark said stiffly. "But half a gee . . ." He shook his head, feeling trapped. He'd been so busy getting things under control during the first month of Earth's flight to M31 that he hadn't had time to think beyond that. But beyond had become now. The first phase was over; the acceleration had been stabilized at a low value that could be held while preparations were made for another boost. How big a boost was proving a far less simple question than he had hoped. "Of course I don't want it to take three thousand years. That's no different from forever, to a human. It wouldn't work."

"Exactly," said Beldan. "But to get a shorter trip, you have to go to a higher acceleration. There's no way around that."

"That much higher?" Clark frowned and looked to his right, at the young man who had brought back the news of the galactic core explosion. "Jonel, what do you think? Is it reasonable to think about that high an acceleration?"

"I'm skeptical," Turabian said slowly. "It's scary, and I don't see how it can be done. But then, I don't even see how they got it this high. I would have thought the Earth was much too fragile."

"Only for the most obvious ways of producing the acceleration," said Zhalãũ, chief of the Kyyra engineers who were moving the Earth. She spoke slowly and carefully and her face was more alien than Beldan's; talking to humans was relatively new to her. But she understood the technical details as Beldan didn't, so it was she who answered such comments as Jonel's. "Of course you can't just push hard on the surface. You'd break it. But the danger comes not from acceleration itself, but from accelerating different parts of a body at different rates. If you could apply a gravitational field-type force equally to all parts of your planet at once, you wouldn't feel a thing, no matter how great the force. We can't quite do that, but we can come close, with our reactionless drive operating under remote control at a vast network of points throughout the Earth's interior."

"But," Jonel objected, "the way a force is transmitted through a fluid—"

"Not this force," Zhalãũ interrupted, shaking her head. "The fact that it's unidirectional and fieldlike makes all the difference. We've been through this before."

"Yes," said Jonel, "we've been through it, but you never say much more than that. If you expect us to buy a high acceleration, can't you explain enough of the method to convince us it's safe?"

Clark looked at him with some surprise. Jonel had been pretty quiet since he brought the bad news home, leaving the decision about the Kyyra's disquieting offer largely to other people. Now, with the trip underway, he was taking a much more active interest in charting its course.

"No," Zhalãũ answered flatly. "You have no conception of how much intermediate knowledge lies between your technology and an understanding of ours. There's not time to try to fill in the gap. And there's no need to fill it. We can handle these

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matters for you. Your efforts are needed elsewhere."

Jonel's eyes narrowed as if to say, *And it couldn't have anything to do with your having something to hide—again?* Beyond him, Sandy, who had done more for communication with the Kyyra than anyone else, listened and watched intently, but her face was carefully noncommittal. Jonel looked back and forth between Beldan and Zhalãũ several times before he said, "Okay. I'll grant that you've got us this far without completely ruining the planet, and you've brought your own planets out from the core and for all I know you've used higher accelerations. But you certainly haven't done it without incident. We have millions of people dead and more hurt and homeless from earthquakes and floods and drought. Even if you can control things inside the Earth, isn't it true that there's going to be more of that sort of thing on the surface when you raise the acceleration? And that the more you raise it, the worse it'll be?"

Beldan nodded. "To some extent, yes."

"But not," said Zhalãũ, "as much as you think. Much of the recent trouble was due to the nature of the priming reaction and the fact that we had to start it at the south polar surface. We're through with that now. The exhaustless drive is working, it's well distributed through the interior, and we'll have time to distribute it even better. We can add quite a bit of acceleration with relatively little disturbance of the crust. And you'll have time to brace for what disturbance there is."

"But enough?" Clark protested. "I don't think so. The earthquakes weren't the worst of it, you know. The worst were the field distortion effects, the flooding and atmosphere changes. Nothing you've said is going to keep those from being worse with a larger acceleration. At a half gee, even the crust and mantle must suffer a lot."

Neither Kyyra replied—and that was a reply. Especially when they both took out music-pipes and began improvising unearthly melodies.

For the first time, Sandy spoke. "Beldan," she said softly, "you don't understand how it looks to humans. You're used to doing things on a scale which we'd only dreamed about until you came. I doubt that you can really grasp what it's like to have to throw your whole body and mind into making one house livable—though you'll learn, when we get where we're going

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and you have to build something new. But believe me when I tell you it's asking too much. Jonel and Henry have shown me the calculations on what a really high acceleration would mean. Go right to that, and the demands and terror will drive most people to give up in despair, even if you can hold the Earth together. Give them something less—something challenging, but within their grasp if they stretch just a little more than they thought they could—and they'll meet it. We're funny that way."

Zhalãũ stopped playing and looked at Beldan. Beldan played on for a few seconds, ending on an oddly questioning note, and looked at Sandy. "Then," he said with a slight frown, "you're suggesting a compromise?"

"Of course she's suggesting a compromise," Clark said impatiently. "She's right. We can go to a higher acceleration—we *must* go to a higher acceleration—but not that much higher. It can't be."

"But . . ." For a moment Beldan's expression became inscrutable. "We can do it, I tell you. You don't believe it, but we can. If we do, we can be there in a decade. Isn't that worth the effort?"

"It would be," said Clark, his voice becoming increasingly firm, "if it had any chance of succeeding. But it doesn't. I'm responsible for billions of people's lives, and I know those people as you don't. In the time we have, they could never get ready for that much tilting, technologically or emotionally. A hundredth of a gee, maybe. A half a gee, no. So we compromise, or it's all been a disastrous waste. For the Kyyra and for us. Well, Beldan, do we compromise?"

Beldan played a nervous tune, then broke off and said, "But a hundredth only gets the trip down to three centuries."

"And you've only been on the way for one," Sandy nodded. "Well, we've been on the way a month. Three months before that we couldn't have even imagined this. Who do you think sees those centuries as worse?"

A moot question, Clark thought, studying the layers of expression in Sandy's face. That was quite a wife Jonel had there. Clark had had one once . . . *How would I feel if I'd been fleeing something for a hundred years and saw a chance to finish in ten and somebody told me no, you'll have to wait another three hundred? Lord! What we're asking of them is every bit as hard as what they're asking of us. Maybe harder. I hope Sandy can make them understand that I understand. For whatever it's worth* . . .

But compassion had its limits too. Just because he understood that it was hard for them, he couldn't give in and make it *that* hard on his own billions. "True," he agreed. "Three centuries. Many lifetimes, for us. A goodly while for you. I'm sorry. But I just don't see how we can go any faster."

"Suppose," Beldan said suddenly, stiffly, "we ignore your request. Zhalãũ controls the drive; humans can't. Suppose I simply tell Zhalãũ to run it up to half a gee, regardless of what you want. What then?"

Clark made himself answer with a straight face, neither chuckling nor shuddering. "The question won't come up," he said. "You still don't bluff very well, Beldan. You know we

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haven't lied to you. If you do that, we won't make it. And if we don't make it, you've no reason to bother with us at all. Right?"

Beldan stared glumly at the tabletop before answering. Clark wondered how much of his dismay was at the consistent failure of his few attempts to deceive. "Right," the alien ambassador said finally, resigned. He played a few more phrases on his faintly flutelike pacifier, then added with dim hope, "But if it works out better than you expect, maybe we can raise the acceleration again later."

"Maybe," said Clark. "But I doubt it."

There was much to do even before that meeting could break up. Sandy sat through it with some of the same discomfort she had felt the first time she and Jonel sat in on a meeting with the Kyyra. But this time she was braced for it, and did not get unnerved to the frighteningly unfamiliar extent she had then. She said less than she often had in the past, and Jonel more, for more of today's discussion was in areas where he was more at home than she. But she listened and watched—and she grew increasingly convinced that there were important things not being said.

She said nothing—hopefully not even her face revealed what she suspected—until that evening, when she was alone with Jonel in their apartment after supper. "Jonel," she said, staring through a haze of memories and emotions at the swirled-metal sculpture Beldan had given them on his first visit here, "what was Beldan hiding today?"

Sitting next to her, looking as pensive as she, he showed little reaction. "Hiding?"

"Yes." They both knew the Kyyra apparently didn't lie—but they certainly could avoid mentioning parts of the truth. "Over and over he looked like he wanted to say something but thought better of it. A couple of times I could tell he wanted to reach for his music-pipe, but resisted. As if he thought it would make us suspicious. He's learning—but so am I." She looked carefully at Jonel's face. He wasn't looking quite at her; he, too, seemed to be trying to say no more than he must. After a while Sandy said quietly, "They're going to have to raise the acceleration again, aren't they?"

He nodded calmly. "Probably. I didn't see any point in mentioning it now unless you did. Besides, I'm not *sure* they will."

Sandy frowned. "How can they avoid it? The radiation from the core will get here in seventeen years—"

"Uh-huh. We'll start getting it a little later, and keep getting it as long as we're below light-speed. But that seventeen years is to the beginning. A core explosion lasts a long time and has to spread from its starting point. I don't know what the buildup curve looks like. The Kyyra should be able to tell us. Maybe it isn't too bad at first."

"Beldan said the levels would rise sharply and dangerously," Sandy reminded. "Henry told us that when he was filling us in on the first meetings."

"But he also said they'd keep rising for years. How dangerous did he mean? Bad enough to kill somebody out in the open for a few minutes?

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Even my measurements make that doubtful. Bad enough to cause dangerous mutations in people who grew up in it? We'd call them both dangerous, but there's a lot of difference. If it's not too bad, maybe we can shield well enough to hold out for a few years, or even decades. There'll have to be shielding anyway, if only against interstellar hydrogen when we pick up speed. Our little ships used field generators for that, but they only worked on bow radiation. We don't know what the Kyyra have. But the fact that they're willing to even consider a lower acceleration suggests they can handle it."

"Or think they can."

"M-m-m . . . yes." Jonel shrugged. "All I know is that in not much more than seventeen years, we'd better either be going fast enough to jump to super-c, or be prepared to weather the storm until we can."

Sandy didn't say anything right away. He hadn't told her much that she hadn't figured out for herself, but his opinion lent conviction to it. Eventually she said, "Do you think Henry knows? Or should we point it out to him?"

"He must know," said Jonel. "But I wouldn't mention it anyway. He's got too much else on his mind now."

"But this is important."

"Sure. And in a year or two we'll have time to think about it. But until then, we're all going to have our hands full. And what we have to do now is the same no matter which course we take later."

They said no more about it then. Later that night, as they were going to bed, Sandy bent to scratch Ozymandias the mutt behind the ears, and found her thoughts concentrated with painful sharpness on the year at hand. *It's February*, she thought, picturing Oz romping through the woods and fields near her abandoned cottage in the mountains to the north. *Almost spring. Only . . . there isn't going to be any spring this year. Maybe Henry should change the calendar so it doesn't remind us.*

For Clark, the day did not end as gently as for the Turabians. Beldan's grudging acceptance of a compromise acceleration—a compromise equally unsatisfying to Kyyra and humans—was only a beginning. It led immediately to the question of how soon the increase would be made, and Beldan immediately pressed for an answer. Clark, aware (though only dimly, he feared) of the hardships it would impose and the preparations that would be required, wanted as much time as possible. Beldan insisted that that wasn't much, and that an absolutely rigid deadline was required. Clark suspected, reluctantly, that he was right. But he couldn't buy a deadline only seventeen months off.

"Why?" he demanded, feeling beads of sweat on his forehead.

Beldan couldn't explain. Part of it, he claimed, was the need to establish a timetable for matching velocities and linking up with Beldan's planet, already bound for M31 but presently traveling at a speed far below that at which it and Earth would complete the trip together. Part of it concerned technical difficulties and inefficiencies involved in holding the acceleration too low—details concerning their propulsion systems which neither he

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nor Zhalāū would try to explain to humans.

But neither would they budge from their year-and-a-half deadline.

Clark finally left the meeting for a hurried and haunted supper alone. *Half a gee*, he thought. *Then a year and a half.* The compromise was an improvement, perhaps, but it was still far from satisfactory. Clark shuddered every time he thought of what the mortality rate would be if that was all the time humanity had to prepare. And the psychological consequences, the loss of morale . . .

Maybe there was still some small hope that Beldan could be persuaded to extend it, once Clark could show him some figures of his own. And with Sandy to help him explain . . .

The population of Earth would face its own limitations, of course. Clark had known that only too well, from the beginning. What he didn't know was exactly what they were. There hadn't been time to think about it before. But now he would have to. Tonight.

As he ate, he organized the questions in his mind. Exactly what had to be done? The organic closed life-support systems developed for distant-planet missions before the turn of the century—and before the Rao-Chang faster-than-light breakthrough—were the key. But how fast could they be produced and distributed? How could they be produced and distributed in the numbers required? What kinds of industrial facilities could be quickly converted to present needs? How could shipping facilities best be used? How about power and communications?

And what would people eat in the meantime? What were the world's food reserves, and how fast could people be taken off them as home recycling spread?

That was the most pressing of all.

As soon as he finished eating, Clark plunged into an evening—which stretched far into the night—of harried consultations with United Nations and World Science Foundation agencies and the central computer at Kennedy Spaceport. Finally, utterly unencouraged, he linked the spaceport computer with the UN/WSF units in New York. He left the resulting team with instructions to ponder all the answers he'd been able to gather and all the others it could gather from the combined data banks at its disposal.

And call him in the morning—or whenever it had reached an answer to his question: what was the optimum preparation time before increasing the acceleration, the time which would allow the highest possible survival rate if they did everything right?

That was at three in the morning. It called him at six-twenty.

Though tired, he had remained so tense that he was not far below the surface of sleep when the buzzer summoned him. He literally jumped out of bed and ran to the terminal he had brought here.

The answers were a neat tabular array of softly luminous green letters and numbers on the big CRT screen. His throat went dry and tight as he read them. *The* number was there, and a multitude of others—answers to subsidiary questions to support the big one and provide the details for the message he would begin sending all

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over the world within the hour.

He looked at them all, hoping they would change as he came more completely awake. But they didn't. And all of them pointed at *the* number.

Less than eleven months from now. Almost exactly one year after the trip's beginning. Even worse than Beldan's deadline.

One year.

That was the figure that stuck and throbbed and burned in his mind.

. . . And in Domingo Menéndez Consuelo's.

Finally the line printer ceased its clatter behind him. He remained at the window a few moments more in the silence that followed, then walked silently over to read the long message. He tore the stack of paper off along the perforations and took it over to his desk of carved *conacaste* wood.

His thoughts traveled in two parallel tracks as he put on his rimless reading glasses and scanned the big sheets of paper. One track simply absorbed the staggering burden this Clark—worldwide "special administrator of emergency operations"—wanted his people to shoulder. The other reflected on how much this burden was like others they had handled in the past.

And how different.

In ways, it was like the big quake of '76, the one that had driven Menéndez's family into the shack below the old church. The view out the window now was very reminiscent of conditions then; the causes of that view, to one who couldn't read the papers, seemed little different. But Menéndez knew they were very different. He could see where the sun was in the sky, and that the days were getting shorter. He understood—though not clearly—that utterly unprecedented threats were on their way.

And there was another difference. Then, his country, in its time of trouble, had been unique, attracting sympathy and help (though too often the wrong kind of sympathy and help) from all over the world. Today it was just one of many. Everyone else was also in so much trouble that there'd be little outside help. If his people were to muddle through this time, they'd have to do it on their own.

Could they? Well, they'd done it then, his parents and others like them. They'd just have to do it again.

The only thing that threatened to crush all hope was that deadline.

Menéndez was a realistic man. He had no delusions that Clark was bluffing. After the first month of the trip, it was hard to believe that anybody in the world could believe that. If he said these things would be done at the end of the first year, ready or not, they would. But perhaps . . . *perhaps* . . . he could be persuaded to reconsider.

Menéndez thought a moment, then got up and stepped to the keyboard next to the printer. His fingers flying deftly over the keys, he tapped out the necessary address codes and then his message:

URGENT AND PERSONAL, TO SPECIAL ADMINISTRATOR HENRY CLARK: WE ARE IMMEDIATELY INITIATING EMERGENCY PREPARATIONS AS PER YOUR COMMUNICATION OF THIS MORNING.

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HOWEVER, ON BEHALF OF MY NATION'S CITIZENS, I MUST REMIND YOU THAT OUR LAND WAS BADLY HIT BY THE EARTHQUAKES AND COASTAL FLOODS ATTENDING THE LAUNCH. WE ARE STILL SO BUSY WORKING TO RECOUP THOSE LOSSES THAT THE PROPOSED TIMEFRAME FOR THE NEW MEASURES SEEMS NOT ONLY DISCOURAGING BUT UNREALISTIC. OTHERS MUST SURELY SEE IT IN THE SAME LIGHT. WE WILL DO ALL WE CAN, BUT I URGE YOU AS STRONGLY AS POSSIBLE—I IMPLORE YOU—TO IMMEDIATELY AND VIGOROUSLY SEEK WAYS TO POSTPONE THE DEADLINE.

DOMINGO MENÉNDEZ
CONSUELO
PRESIDENTE DE
LA REPUBLICA

He glanced quickly at the copy the printer had made for his records—there was much more he would have liked to say, but this was better politics—and then went back to the windows as his mind, gathering speed, turned over what he must do first.

Right out there was some of it—the market, the streets full of vendors, many of them still Indians in traditional garb come in from the countryside to sell produce and crafts. Or rather, "distribute"—"sell" was no longer the word. Money no longer meant much, here or elsewhere. Menéndez had found ways to let it still circulate, which was vaguely comforting to some who didn't understand what was happening, while at the same time assuring reasonably equitable distribution of goods. Now even that would change. The market would still serve as a distribution center, but money would no longer serve as even a nominal medium of exchange. Now there would be strict, tight, meager rationing—for all, including himself—and more soldiers roaming the market to make sure it was done.

Already he saw what must be done about that; it was merely a matter of starting orders down chains of command. He spun about and strode quickly back to the desk and lifted the phone. He paused just a second or two before punching out a number, to gaze at the yellowed placard that still hung on the wall behind the desk. He had saved it from his family's shack, that year in his boyhood, one of thousands all over the city and the country proclaiming the defiant motto of reconstruction: "*¡Guatemala está en pie!*" "Guatemala is on its feet!"

"*Ostra vez*," he murmured grimly to himself. "*Espero.*"

But he felt little hope as he crossed himself, punched buttons on the phone, and began snapping out instructions. Even as he did that, the other track of his mind was planning the next step that he must take.

There were a million things for Clark to do.

In essence, there were only two basic problems that had to be solved within the year, and the work would be shared by all the people of Earth. But the two basic problems resolved themselves in practice into a vast, interlocking complex of smaller but by no means small ones. And the whole effort, to have any chance of success, had to be coordinated by a

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single individual—in effect, the planet's first truly global dictator. A couple of months ago, he could hardly have imagined a less likely candidate than himself for such a role. But circumstances—in which he had played one small but crucial part which had so far luckily escaped public notice—had forced him into it. When the time had come, there had simply been no other candidates, likely or otherwise.

Now, stuck with it, he was determined to give the two problems all he could so as few additional people as possible might die. Basic problem number one was simply the surface activity that would come with the change in acceleration. The oceans and atmosphere, already significantly redistributed by the distortion of the apparent gravitational field, would shift still farther south. That meant storms everywhere, temporary or permanent flooding in central and southern latitudes, and permanent drought in the north. And, even though the Kyyra used their reactionless drive with a delicacy which shortsighted human engineers insisted was impossible even while it was happening, they could not avoid *all* stress on the crust. The biosphere—what was left of it—was so thin, compared to the whole planet, that a globally tiny perturbation would seem catastrophic to people caught in it. There would be earthquakes, and here and there volcanoes would grumble in their sleep and bury cities under molten rock.

The addition of new thrust, in short, would bring problems very much like those brought by the original, now stable, thrust. The crucial difference was that this time people would know it was coming. They would have a few months to prepare—to strengthen houses, to move out of especially vulnerable places.

Basic problem number two was less familiar and more complex: food and water supply for people suddenly deprived of all their traditional sources. The southward flow of water not only flooded the south (such cities as Melbourne and Cape Town were drowned and abandoned), but left the north without natural reservoirs. Water had been collected and held from the beginning, but better ways would soon have to be applied to recycle it. The food problem could be stated quite simply: agriculture was dead in the north and dying to the south. Indeed, practically the whole ecosystem was dead. Between the drought and eternal darkness spreading over the northern hemisphere, and the flooding and perpetual but waning daylight over the southern, most plants and animals would already be extinct except in protected collections and in and near the tropics. That left people entirely dependent on existing reserves of food—canned, dried, frozen—until they got substitute sources into operation.

The substitute source was the working element of those life-support systems: the edible aquatic plant complex which would also recycle organic matter, water—and air. It was clearly urgent to get them into widespread operation as fast as possible. It was even more urgent than food and water considerations alone would dictate. Even airtightness of dwellings was more desirable, sooner, than might have been thought from the present rate of atmosphere escape

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alone. It was best to consider the whole life-support system as a package, and at least as urgent as earthquake protection.

On the face of it, it sounded impossible, even described in these grossly oversimplified terms. Such hope as there was rested on the fact that the life-support and sealing systems had already been refined to a simplicity and ease of installation undreamed of before people began seriously concentrating on making long manned spaceflights possible. The Kyyra suggested further refinements. The things that were needed could be added to existing dwellings by the occupants themselves, with little need for special tools or skills.

But it could only be done if the materials and know-how were available. That meant they had to exist and they had to be where they were needed. Big indoor farms were established to grow cultures of the organic soup for the recycling tanks. Small quantities could then be distributed as starters for home cultures, which would then thrive when fed practically any organic matter—and there was no shortage of that. The algae grew and multiplied quickly, but at the beginning there was difficulty finding enough to start the process toward large-scale production. The tanks themselves had to be manufactured, in kit form, in unprecedented quantities. Likewise artificial light sources, both for the tanks and for people to see to work where the sun had already set. Factories already equipped to do such things ran around the clock at expanded capacity. Others, formerly devoted to products now useless, were massively and hastily converted. Zhalãũ and her cohorts showed how to tap the driving reaction for electrical power at the surface—a process as seemingly magical as the drive itself, but fortunately rather easy to do.

As fast as tanks and lights and starter cultures and sealing compounds could be made, they had to be distributed. At this stage, that was still a matter of making the best use of existing transportation, some forms of which could still be used. With the materials had to go instructions for using them. That meant instructions had to be written and translated and printed in hundreds of languages, and teachers trained to take them orally to speakers of those and still more who had not learned to read. All that made it possible, even to the extent that it worked, was that the emergency was so clear that a rapidly growing number of people accepted—though often grudgingly—the need to deal with a hierarchy of dictators.

But the political and human problems were by no means small. The subordinate hierarchy took some of them off Clark, but he still put in thirteen and fourteen-hour days of virtually nonstop work, and he still felt frustration at not being able to give details the personal attention they deserved. Solidarity and morale were still lacking. Early on, he found it necessary to establish what he privately called a propaganda mill and publicly called the Central Information Service. Some of its first important products were the instruction manuals and the New Age calendar Sandy had suggested, dating from the launch and eliminating references to irretrievables like spring and summer.

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There were dangerously divisive controversies, and time for only shotgun methods to try to smooth them out. In some cases there were easy answers. It was easy to explain why the Kyyra's alternate power source went first to places that had depended on hydroelectricity. But there were other questions of priorities, far less simple, that left festering feelings on both sides of the splits they produced.

And there were complaints about the deadline itself, mostly from places badly hit by the original launch. Clark had a huge pile of messages, some earnest, some irate, some both, from officials in places like Australia, Japan, Guatemala, Peru, Mozambique, . . . all wanting to know why they couldn't have a little more time. There was a pamphlet, but Clark kept all those messages and from time to time got them out and looked at them, longing—intending—one of these days to answer them, to *really* answer them.

But he never found time to do more than look.

During the first part of the year, Menéndez was too busy and too hopeful to think very often or very long about failure—or about the fact that Clark hadn't answered his note.

A typical noon in early April—"Month Four, Year One," they were calling it by then—found him strolling north on Séptima Avenida, out of the downtown shopping district (now hardly recognizable) and into the modest residential area beyond. His boyhood home had been more or less up that way—he could see the Ermita from some of the open intersections

in times to come

- Science fiction is an excellent medium for new writers to break into print. A brand-new writer leads off our August issue with his first published story. Robert Lynn Asprin's novelette, "Cold Cash War," shows how today's mercenary armies and multinational corporations might take a shot at taking over the world and making national governments (and their armies) obsolete. The story is an excerpt from his novel of the same title, which will be published this summer. Kelly Freas makes one of his too-infrequent appearances with a handsome cover painting that depicts one of the mercenary soldiers' "kill suits."
- In a field that deals heavily with the future, new writers can quickly become old established hands. It wasn't so long ago that Larry Niven was a newcomer; now he's one of science fiction's top professionals. His short story (with the long title), "Rotating Cylinders and the Possibility of Global Causality Violation", neatly uses the medium of fiction to argue with scientific concepts discussed in this magazine a while back by Dr. Robert Forward.
- August's science fact article will deal with the "frontier law" of outer space—as it is being developed today. And we'll have more stories and all our usual departments.

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now—and he still liked to keep the common touch. Unlike some of his predecessors (and like others), he often strolled unaccompanied among the populace, mingling and chatting. For him, it worked.

Noon, now, was the only time he could take his walks in anything like daylight. Soon even that would be gone, but for now the midday sun rose almost high enough to see. Not quite—it couldn't quite clear the mountains south of the city—but close enough to paint the sky deep blood red behind the silhouettes of the government buildings and the big hotels along La Reforma. During that hour the city got something a shade better than twilight, and Menéndez liked to look at it then. He thought of it almost as paying his last respects.

The streets were full of workers, much as they had been on that other occasion. But now they had lanterns, for the street lights needed work and during most of the day there was no other light but the stars. Menéndez walked slowly, nodding and trading pleasantries with men and women wielding picks and shovels by the curb and hammers and other tools both inside and outside pastel-painted houses. The damage hadn't been as bad here as in '76—people had learned a lot about adobe construction after that one—but it had been appreciable. Looking at the work these folks had done already, he was sure it would be much less in the next one, even though he was just as sure that was less than a year off.

He paused in front of a pale pink house where the front door stood open while a wiry man of fifty and a chunky woman a little younger hammered something around the frame. A scrawny black and white dog, the white tinted pink by the sunsetlike light, snoozed underfoot, oblivious of their labors. *He'll be food one of these days, like as not,* Menéndez thought. But he forced that away and smiled and said, "*Buenos días, Pablo, Carlita.*"

They flashed cheerful white rows of teeth back at him and returned his greeting. "*Buenos días, Señor Menéndez.*" "*Buenos días, Señor Presidente. ¿Cómo está?*"

But they didn't stop working.

"Well enough," he assured them. "Looks like everything's coming along nicely here."

"Not badly," said Pablo. "It'll hold, I think. We've got the sealing kits; that's what we're working on now. We missed out on the first shipment of tanks and soup, but there's another due soon. We'll get it."

"Sure," said Carlita, holding a strip of something against the wall while Pablo did something to it as smoothly as if they had rehearsed the whole thing many times. She grinned. "We're in no hurry to start eating algae soup anyway. Can't say we're eating well, these days, but at least what little there is is still real food."

They exchanged a few more pleasantries before Menéndez excused himself, saying he had to hurry back to the office and dig into a pile of work. Pablo and Carlita nodded and waved as he turned away. "Until next time," they both called after him, and Pablo added, "*¡Guatemala está en pie!*"

Menéndez smiled to himself as he walked back toward the palace, to-

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ward a southern sky where the reds were already giving way to deepening grays. He'd revived the old battle cry at the beginning of this thing, and it had caught on as quickly now as when he'd originally heard it. At times like this, seeing and talking to people like Pablo and Carlita, he could almost believe it.

Especially with most of the time still to go. But, he knew, there were disturbing notes too . . .

The village, somewhere among the neat terraces that had been farms in the rugged hills near Lake Atitlán, was so little it didn't have a name. It had never even occurred to Mario that it was a village until the Teacher said so, although he'd lived there all his life.

He was a strange bird, this Teacher—not like any of the few others Mario had known. He had come up from the capital, he said, bouncing along the dirt road to the village in a noisy old panel truck with feeble yellow headlights. The truck was full of strange boxes and gadgets which the Teacher insisted on passing out to the villagers. It was very important, he said earnestly, that they learn to use them. Naturally Mario was suspicious—though not as suspicious as some of the older folks, like Grandmother Laura—but he was inclined to listen. If the Teacher was a threat, he had to be understood before he could be counteracted.

And maybe he wasn't a threat. Maybe he actually brought the help he claimed. No one could deny that these were strange times.

So Mario listened. He and two dozen others sat in a semicircle on the ground, under the black and starry sky—it was always like that now, though it still paled ever so slightly near the southern horizon around noon—and they listened to the Teacher. He was tall and thin and young, with an aquiline nose jutting protectively over a bushy black mustache. The nose cast a long shadow across his cheek on the side opposite the single dim electric lantern standing on a rock. Mario had tried to tell him there was no need for that—there was lots of wood and dead cane that could be burned for a stronger light—but the Teacher wouldn't hear of it. "No fires," he had said quickly, shaking his head vigorously, becoming strangely upset. "Mustn't burn anything, ever again. Not unless it's absolutely necessary."

Mario had shrugged and let him have his way. Now he stood at the hub of the assembled group, gesticulating and telling them, "When the air outside goes bad, you'll have to stay inside. And you'll have to keep good air in with you, so—"

"Excuse me, señor," *interrupted a polite voice from the other side of the circle. "Why will the air get bad, again?"*

The Teacher sighed. He had tried to explain it many times already, and Mario knew he would have no more success this time, because he always said the same thing. "Because the galaxy's exploded," he said, and Mario mouthed the words with him, "and the Earth is being moved to a safe place. The motion's pushing the air to the south, and things have died so they can't keep the oxygen and other gases in the proper balance anymore. . ."

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Gibberish, *Mario thought again, impatiently, as the Teacher droned on.* What's a galaxy? What's oxygen? How can anybody move the Earth? Where could they take it? *It was all so silly. Grandmother Laura, sleeping fitfully in the hut, had her own explanations for what was happening, curiously compounded of Catholic preachings and ancient Mayan traditions. Mario was beyond accepting them at face value (though he would never tell her so), but they made at least as much sense as the Teacher's version.*

When the Teacher finished his answer, he paused, leaving an awkward stillness in the warm, stuffy air. "Now," he began anew, "as I was saying—"

"Excuse me again," said the voice from the darkness. "You say we will have to stay inside. But for food, and water—"

"The tanks will take care of all that," the Teacher interrupted, growing impatient. "And you'll get radiophones to talk to your neighbors and get instructions from the government. But, please, all that comes later. Listen to me now. I already told you about the tanks. They'll keep your air fresh. But to keep your fresh air in, you have to seal your houses. You take the paste in these containers and smear it along all the cracks—"

He broke off, taken aback by the ripple of laughter that swept the circle. "What's wrong?" he demanded. "What's funny?"

A hush. When he saw that nobody else was going to answer, Mario stood up. "Señor," *he said with a kindly patronizing smile, "you speak of smearing all the cracks with this stuff you bring. Have you looked closely at our houses?"*

The Teacher didn't answer right away. "No, I'm afraid I haven't."

"Come over here with me," said Mario, starting toward his hut. The Teacher picked up his lantern and followed. "Speak softly, please. My grandmother is sleeping inside, and she hasn't been feeling well." Mario gestured at the wall, made of vertical cane poles with big open spaces between them, and at the thatched roof. "Things here are not as they are in your big city," he said. "Patch the cracks, you say? How much paste did you bring, señor?"

The Teacher, staring wide-eyed at the wall and roof, looked as if he needed to sit down. Inside, Grandmother Laura, disturbed by the shafts of yellow light streaming in from his lantern, stirred and made little noises in her sleep. "I'm going to have to think about this," the Teacher whispered.

Emilia, seated under one of the decorative wall lights at the side of the colonnaded patio, finished reading the instructions and let them fall in her lap with a feeling of quiet dismay. She stared ahead into the blackness, broken by the tiny oasis of the one remaining box of red and yellow flowers, basking under a floodlight. The others here, and all outside the house, were dead and shriveled now. These still gave color and fragrance—but, as Emilia read the instructions, even that might not be for long.

Her eyes wandered to the left, to the crates piled in the harshly shadowed corner, and then to her hus-

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band. "That's all they sent?"

Rodrigo, his broad yellow hat resting on his knee as he sat in the wicker chair recuperating from the drive back, nodded. "That's all."

"For all of Finca Ramírez? For our house and the workers' quarters? It's not enough!"

Rodrigo shrugged. "But it's all they gave me. I tried to make sure it was right, but they just hurried me through. They were very brusque." He forced a weak, humorless laugh. "Maybe they thought the Indians had all gone home, now that there's no more coffee to pick."

"But they have nowhere else to go. This is their home, now." Emilia sat silent, breathing slowly, thinking of the rows of neat little thatched cottages along the plantation's winding drive—tiny and humble, but clean. And she thought, one by one, of the faces and voices she knew in them. She opened the instructions to look at the figures, to make sure she'd read them correctly. She had.

"Rodrigo," she said slowly, "we can't just let them do without. They'll die."

His face was blank. "What else can we do?"

She drew a deep breath. "We could share it with them." He started to say something and she went on quickly, "No, listen. We can't do all of our house plus the cottages with this. But we can do just part of the house and have some left over. It's a big house, Rodrigo. We don't need all of it."

"No!" he said with surprising vehemence. "I can't live cooped up like that."

"They *do*," she said quietly. The quiet became silence, too long. Emilia grew acutely conscious of the absence of all the sounds that should have been there when it was dark outside, all the nonhuman but somehow friendly things that were no more. When Rodrigo had been silent for far too long, she said, "If you don't want to do that, maybe we could fix the whole house and let them use part of it."

"*How is* that *better?*" he said scornfully.

She was stunned. He had always been good to his workers—at least as good as any other finca owner she knew. She would never have imagined him so unfeeling toward them in a crisis. "This is an emergency, Rodrigo," she said—still quietly, but with a coldness in her voice that had not been there before.

"But it's forever," he said. "As far as we're concerned. That's what they say, anyway. I don't think you realize what it would be like, Emilia. All of us and them under one roof, getting on each other's nerves . . ."

"In an emergency," she said harshly, "everybody has to sacrifice. And maybe it will be temporary. Maybe there'll be more supplies later—"

"And maybe there won't. I'm sorry for them, too, Emilia. But we can't let our emotions drive us to do something we'd regret the rest of our lives. We'll just have to fix what we can now, and then hope we get enough more in time to help them too."

"But—"

"I'm sorry. It's out of the question."

She rose from her chair and looked down at his harshly lighted face, her lip quivering and her eyes feeling hot and wet. "You think so?"

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she said ominously. "I thought I knew you, Rodrigo Ramírez Colón. Well, I can tell you this. You're not *going to leave them out there to die. Not if you want me to ever so much as speak to you again. Now think about it!"*

She stomped off into the house.

By Month Nine, it was apparent that it wasn't going to work. One of those thought-tracks in Menéndez's mind had been trying to tell him that for some time—that there were still too many people not taken care of and too little time left to take care of them. The other track kept trying to pretend it wasn't so—that things would still work out all right. Circumstance drove the two tracks back together. . .

Menéndez went to the airport that day, at what the clocks called late morning. It was dark, of course. The city was eerie: the street lamps were all working now, but dimly, to conserve power. There was little traffic, with headlights dimmed, so he made good time. The plane was already on the ground when he arrived, but hadn't started to unload yet. And the airport was crowded—much more crowded than it should have been.

Menéndez saw that as soon as he got inside the terminal and had to weave and dodge and elbow his way through the throngs. A time or two he even thought of the advice he was too often receiving (and ignoring) from his cabinet, that he should not go out in crowds without bodyguards. "No," he always told them, "trusting my people is too important a part of my image . . ."

But these crowds disturbed him. The airport had not been closed, but passenger traffic had virtually vanished, and with it the usual airport crowds. Those here today could only have been attracted by the plane Menéndez had come to meet—and they could only get in the way.

They thickened as he turned down the concourse where it waited. The gate area was cordoned off, but people pressed in on it, milling around the rope and guards. Menéndez struggled through to the chief guard and got himself let through. He found an almost-quiet corner and took out his pocket radiophone to call General García back at central headquarters. "Menéndez here," he said curtly. "At the airport. Just want to make sure you know—there's quite a crowd here. I don't like it. Maybe you'd better get some more troops out here."

"Yes, *Señor Presidente.* Raigosa has already called. They're on their way. Thank you for calling."

He contemplated the little gray box for a moment before putting it away. Not very different from those in the cargo of the big plane waiting outside. Many thousands of them—but, rumor had it, not enough thousands. He had hoped the rumor could be contained, but, looking around, he doubted that it had been. He felt a gnawing fear that these people had heard, and were here to look out for themselves. For the radiophones would be crucial in the months—the *years*—to come. One of them would become each sealed household's only everyday link with the outside world.

He stepped closer to the glass, to cut down glare, and looked out at the

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plane. He could see it clearly—aviation was demanding enough, these days, without the risk of bringing vital cargoes into poorly lit airports. So here the lights burned bright. The plane gleamed in dazzling patterns of pinks and yellows—Aviateca had used colorful planes for as long as he could remember. A long caravan of military and civilian trucks waited, the first near the plane's main cargo hatch, the others lined up behind. And the hatch was opening.

It swung down and out, slowly and silently, spilling out a shaft of warm light and a conveyor that snaked down to the first truck. The truck adjusted its position, just in time to catch the first crate from the belly of the plane. A worker crouched in the hatch, loading crates onto the top of the belt; another swept them deftly off at the bottom and stacked them in the truck. Three soldiers with submachine guns paced around the truck and conveyor.

Abruptly, a sharp cry burst simultaneously from many throats behind Menéndez, and there was no quiet after that. He whirled to face a solid wall of civilians vaulting the rope and running toward the outside door and windows. The guards moved quickly to stop them, but there were too many. The first wave knocked the rope down, and then the whole mob surged forward. The guards yelled; the crowd yelled louder. Somebody threw something and the big window near Menéndez shattered. Flying glass narrowly missed him; he saw blood appear here and there among the crowd. But nobody stopped or even slowed. The tidal wave of people poured through the door and window, straight for the conveyor. Both out there and in here, echoing loudly, warning pistol shots rang out. But they had no effect. Seconds later, the submachine guns chattered out by the trucks. People screamed. For the first time, the crowd faltered; some started back toward the building. Through the channel that opened up Menéndez glimpsed bodies lying motionless on the ground.

Then someone was tugging at his arm and saying, "This way, *Señor Presidente.*" He jumped, then saw with relief that it was a soldier brandishing a submachine gun.

Or am *I relieved?* he thought as the soldier led him swiftly along the wall toward an exit. Remembering some of the more turbulent days of his country's politics, he thought, *Maybe they've had enough of me . . .*

But it wasn't that. The relief had been justified. The soldier merely escorted him back to his car and asked him if he'd like an armed escort back to the palace. Menéndez hesitated a second, then said grudgingly, "That might be a good idea."

He got in and let the soldier in the other side. He drove too fast all the way back to the palace, but of course no one questioned him. Neither he nor the soldier spoke. Menéndez shook all the way; his thoughts and emotions churned violently. *I had no idea!* he thought. *I should have closed the airport. But there was simply no hint of anything like this before . . .*

Back at the palace, he hurried immediately to his office and locked himself in. His analysis of what was happening had crystallized by then, and his anger had congealed into

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determination. He punched out a long-distance call, waited, and finally got a bland answer.

"This is Domingo Menéndez Consuelo," he announced tightly, in English. "President of Guatemala. I must talk to Administrator Clark at once."

"I'm sorry, sir," said the voice at the other end. "Mr. Clark cannot take calls at this time. Would you like to leave a message?"

"No, I would *not* like to leave a message! It's vitally important that I speak to Mr. Clark personally, right away."

"I'm sorry, sir. Mr. Clark is extremely busy."

"So am I. My business is his."

"Lots of people believe that, sir. My job is to screen them. If your business is as urgent as you say, I'm sure Mr. Clark would recognize that and call you back. If you'll leave a message—"

"Somehow," Menéndez said, as acidly as possible, "I doubt that. Look, I *have* to get through to Clark. When do you go off duty?"

"I'm sorry, sir, but I don't see—"

"You wouldn't." Menéndez slammed the phone down and sat glaring at it. He'd expected a runaround, of course. But he wasn't going to be stopped by it. He wasn't going to be stopped until he got through to Clark and got what he wanted.

He wasn't going to be stopped.

Clark readjusted his glasses on his nose and stared through them again at the report on top of the pile. In itself, in another time, it would have been consuming cause for grave alarm. Now it was just one item among many. Still, it warranted a second look. Atmospheric changes and medical problems, the heading said. The body summarized an observation by somebody in the technical hierarchy about a possible link between an increase in various health problems and changes in atmospheric composition resulting from the collapse of the ecology.

Well, who can say? Clark thought wryly. *With all the malnutrition and everything else to confuse the issue . . .* Atmosphere changes were inevitable, of course, but not instantaneous. Ecology was a complicated science, immature among humans and forgotten among the Kyyra, and data on what had happened were sketchy. So the estimates of how fast the changes should occur were far from unanimous. But there was general agreement that oxygen would not fall to a dangerously low level, nor carbon dioxide rise dangerously high, for a time. There was even a surprising amount of photosynthesis still going on in the enlarged ocean of the southern hemisphere, where perpetual daylight partly compensated for the fading sun, and the demise of some species fed a final burst of glory for others.

Even that was temporary, of course. And individuals vary in their adaptability. But the real danger now, the report suggested, might lie in much smaller amounts of other materials—poisons released by vast quantities of unburied dead things all over Earth.

Here in his office, with efficient recycling already in full swing, Clark might have found the report comfortably remote. He didn't but he did

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recognize that while the matter deserved investigation, there was little that could be done even if the writer's suspicion was true. Little, at any rate, that was not already being done. So he stamped it CONFIDENTIAL, shoved it into a folder addressed to a suitable section head, and attached a scrawled note that said, "Look into this."

Then he shoved it into the OUT basket and out of his thoughts.

He paused, eyes closed, to grab a needed minute of rest before looking at the next item. Thirteen hours, he estimated, since he'd started. A typical day, now. He wondered how he took it. A year ago, he knew, he couldn't have; but now he held up surprisingly well under the constant stress. *Something like Dianne,* he thought with faint amusement, remembering his late wife back when they'd had their one son. *With a child to take care of, she could be run so ragged she should have dropped, and yet she didn't. Well, there's a resemblance . . .*

The door opened softly and Rose FitzHugh came in. "Coffee, Mr. Clark?"

He opened his eyes and laughed wryly. "You use the term loosely," he said, reaching out to take the steaming cup. "But thanks anyway." He sipped it; Rose didn't leave. Already Clark was tired of the taste of the stuff, but so far he had resisted grumbling. He should have been overjoyed that the system actually worked well enough to produce it. Still, he hadn't had any *real* food or drink since they got things going.

Better get used to it, he told himself. *It's only been a few months now. And it's going to be forever, as far as I'm concerned.*

He looked up at Rose, still waiting. "Something I can do for you?"

She hesitated. "I guess not. I was just going to mention that President Menéndez called again. He's awfully determined."

"President who?" The name sounded vaguely familiar . . .

"Menéndez. Of Guatemala. He's been trying to reach you since noon yesterday. Insists it's very urgent."

"They all do." Clark hated to sound callous, but there was only one of him and only so many hours in a day. "Did he leave a message?"

"Yes. The second or third time."

Clark picked up the thick sheaf of "ultra-urgent" message slips and riffled through it. Answering them all would have been a full-time job in itself . . .

He found Menéndez's. It wasn't very specific. "Must discuss time bind and possibility of extension. Remind you of previous appeal, lost or disregarded, early Month Two . . ."

He remembered now. Guatemala. One of the first of the messages he'd kept meaning to answer back around the beginning of the one year plan. He glanced at the message, watched a quick succession of thoughts tumble through his mind, and announced his decision. "I'll return this one now, Rose. Put the call through, will you?"

The call came as Menéndez was getting into bed, but he didn't complain. Somehow he even managed to sound reasonably civil as he sat in the leather chair beside the bed and explained what was on his mind. "The people are getting desperate," he said.

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"Immediately before I tried to call you yesterday, I witnessed a riot at the airport here. Our first big one; we haven't even had any real food riots. Now they've looked at the calendar and seen how little time is left, and when that planeload of communicators came in, they were afraid to depend on the distribution centers. They'd heard there weren't enough, so they tried to help themselves right from the plane. There *weren't* enough, you know. And now there are even fewer." He paused, then said very carefully, "We need an extension, Mr. Clark. I told you that months ago, and I'm surer than ever that it's true. We simply aren't going to be ready by the end of Month Twelve. We can't."

"I'm sorry," said Clark. His voice was quiet, sympathetic—but his sympathy was empty. "I understand what you're up against. But I can't help you. An extension simply isn't possible."

Menéndez's civility faltered. "*Do* you understand, Mr. Clark? I find that hard to believe. We are here and you are there. I have a newsfax copy of yesterday's *Prensa Libre* here with an article reprinted from one of your own papers, boasting of how nicely the preparations are coming along in the highly developed countries of North America and Europe. Mightn't your view be colored by the fact that you are in one of those countries, and no doubt quite comfortably settled in?" He resisted the temptation to press the issue of *why* those countries were so much better prepared than places like Guatemala. With a carefully amiable chuckle, he smoothed his voice again. "Forgive me if I sound bitter, Mr. Clark. If you understand, you will understand that too. *No* extension is possible, you say?"

Clark seemed to hesitate, almost but not quite imperceptibly. "No significant extension can even be considered. The computers and the Kyyra agree—"

"Ah," Menéndez interrupted, "but an 'insignificant' extension might be considered?" He didn't wait for an answer. "At this point, Mr. Clark, no extension is insignificant. A couple of months, even one month, even a *week* would save some lives and therefore be worth it. Please understand, sir. Guatemalans do not sit around begging for mercy or favors rather than working to help themselves. I wish you could see how they've been working. In spirit and background, we are better suited to recovering from disaster than most of your people. We've had practice—and many of us have fewer artificial attachments to miss. But by the same token, we lack the technological head start of some countries. This time that matters. This is not just another earthquake. For the technical changes we must make, we need a little more time. That's all I'm asking."

"I appreciate that," Clark assured him gently, in fairly decent Spanish. "But," he continued in English, "there's little I can do. The situation's too complicated to explain easily. But what it boils down to is this: we have to stick to the deadline. Look, Señor Menéndez . . . it's not as bad as you think. The increase won't be instantaneous. There'll still be time to work after it starts."

"Easy for you to say," Menéndez grated, his temper beginning to rise,

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to struggle free of its harness. "Where you are, far from fault lines. Here we will have quakes again. Have you ever tried to work during a quake, Mr. Clark?"

"No. But—" Clark started to say something else, broke off, and remained silent for several seconds. "I'll think about it," he said. "Will that satisfy you for now? I'll think about it, and double-check, and call you back. I can't promise you anything beyond that, but I will think."

Menéndez, far from satisfied, pondered his reply for many seconds before he spoke it. "I will wait."

The call, and the promise he had made, rankled in Clark's mind. His sleep, though sometimes very deep, was fitful. When he woke in the morning, he found himself relieved that he hadn't dreamed about Dianne.

It was a clear sign that he needed to talk it out with somebody. Dianne had filled that need as nobody else ever could, and no doubt it was a subconscious effort to regain that that had led him to dream about her so often during the last months of the Old Age—those agonizing weeks of indecision about whether to accept the Kyyra offer. But those dreams had twisted Dianne into such tormenting travesties of the woman he had loved that they were far from welcome. He'd been tremendously relieved when they stopped after the decision was made—and he had no desire to see them return.

As he dressed, he decided without effort what to do first today. He'd been fortunate, in a way. Jonel and Sandy had, to some extent, come to replace that one part of Dianne: somebody to talk to, somebody who would listen sympathetically to the things he had to say but could not say in public. It had come about gradually and without plan (as such things must), and it was entirely unofficial—officially, the Turabians had no connection with the emergency government. But in a certain special sense, he reflected as he started out to visit them, they were one of its most important parts.

Their apartment was not far from his—a short walk across a courtyard under a black velvet sky studded with clear, bright stars. He passed through the building's outer airlock—an ingenious design which Clark hoped eventually to have added to most houses throughout the world—and down the hall to the Turabians' apartment.

He found them working on some reinforcements, but not frantically. For the most part, they were well settled in, and with weeks to spare. They had time to visit.

Now, as he faced them there on the couch and told them about the call from Menéndez, that bothered him. That, and the security of his own quarters . . .

"So I'm tempted," he said as he finished summarizing. "I do sympathize with their situation—and I know it's not unique. It's just the one where I happened to talk to somebody on the spot, and it drove the point home to me. Maybe I shouldn't have done it. Maybe it's cost me my objectivity, my perspective."

"Maybe," said Jonel.

"That's why I had to talk to you. Help me get it back. Should I even be considering an extension? Not a big

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one, you understand. That's out of the question. But how about a little one?"

"What does the computer say?" Jonel asked.

"The computer still gives the same answer. But it's not really out of the question. Those projections have so many variables and such hazy estimates of some of them that even the Kyyra Coordinator can't be sure. Maybe enough people are onto home life-support systems—and enough others have died—that we could stretch the food reserves a bit farther." He thought of what it would have been to try this with the reserves that had existed before the world government's advances of the last two decades, and shuddered. "But the longer we wait, the less head start we have on the radiation. And I'm concerned about the psychological effects. Mightn't people take false advantage of the reprieve and slack up on the preparations? I don't think Guatemalans would. I think Menéndez has sized them up fairly; they'd make good use of the extra time. I hate not to give them every chance. But how about the world as a whole? People aren't all alike. I'm afraid if I do this in the hope of saving a few more lives, the subtle side effects might wipe out the gains. Maybe even more than wipe them out. Maybe *more* people would die."

Sandy's normally cheerful face was solemn, her long brown hair falling very still over her shoulders. "I'm glad I didn't talk to him," she said. "I think I would have been convinced. But I'm not sure I would have been right. I'm afraid maybe you're right."

Clark smiled slightly at her. "But you're not sure?"

"Definitely. I'm not sure."

He turned to Jonel, calm and self-assured as usual, but seemingly taking pains to be neutral. "Jonel?"

"I don't envy you the decision, Henry."

"But you're not going to help me make it?"

"I don't think I should. I don't think I *can*. If I could point out facts you'd overlooked, that would be one thing. But I don't know any more than you do. Probably less. I will admit I'm also afraid of the long-range consequences of changing the deadline. Move this one up, and it'll be harder for people to take the next one seriously, and that might be bad. The galaxy isn't going to give any reprieves, period." He shook his head as if annoyed with himself. "But here I sit spouting the personal opinion I said I shouldn't. Remember that speech you gave when you took over, Henry? 'A ship under battle conditions must have one commander,' you said. Right. And he has to command. He doesn't dare get bogged down trying to satisfy committees. So don't let us act like one. You're the commander, Henry. Decide what you ought to do, do it, and don't look back. We'll be behind you."

"Jonel's right," Sandy said. "You have to do it. I've never liked military-type decision-making, but I can recognize when it's necessary. It's in good hands this time. Just remember the basics."

"Which basics?"

"Don't do anything you'll regret, and don't regret anything you do."

Clark nodded slowly, mildly disap-

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pointed. He stood up. "Noted," he said. "Thanks." They had helped—not the kind of help he'd come hoping for, but they had helped.

He went to the door and stepped out. *And*, he thought, *the computer may be right . . .*

Glumly, he walked slowly across the dark courtyard, almost decided.

A part of him knew what he must tell Menéndez. Another part kept wishing he could find a way not to.

Once more Menéndez found himself sitting at the *conacaste* desk glaring angrily at the phone he had just hung up. But this time he made no effort to bridle his fury; he let it boil.

And while he did that, one of those tracks in his mind coolly pondered and laid plans.

Snatches of the phone conversation echoed in his mind. This time he had not slammed it down in anger. This time he had lowered it to its cradle gently, slowly . . .

Numbly. This time Clark had ended it, not in an emotional outburst, but certainly with appalling curtness. "No," he had interrupted when Menéndez tried to appeal his unfavorable ruling, "there's nothing to discuss, and we both have mountains of other work to do. I'm sorry."

And that was that.

Menéndez didn't waste time trying to call back. He just sat there, simmering, for half an hour. And then he made his decision.

The intercom was just a small box attached to the telephone, with a dozen extra buttons. Menéndez picked up the phone, pressed three of them, and waited. Within five seconds a crisp voice answered, "Intelligence."

"Menéndez here. Tell Perales I need to see him right away. My office." He hung up, knowing he would not have long to wait.

Guillermo Perales Alberti was there within three minutes. He came in after a single rap and no perceptible wait, a gray-haired man of moderate build and unprepossessing garb, but somehow radiating efficiency. "Yes?" he said, fixing his eyes on Menéndez's face and helping himself to the matching chair on the other side of the desk.

"I need some information, Guillermo," said Menéndez.

"You've come to the right man."

"I know. I've been trying to get this Clark to give us a little more time. He won't budge. I need leverage."

Perales nodded, said nothing.

"You have men in New York and Florida and such places, right? Well, put them to work. Find something I can use. Fast. Anything you can about Clark's background. How this all got started. What he had to do with it. What happened to Franz Gerber. Kind of funny, isn't it? Head of the UN until right after the launch, then out of a clear blue sky he turns everything over to Clark and nobody hears a peep out of Gerber any more. Yes, that's funny." Menéndez shrugged.

"I don't know what you'll find, but there's got to be something somewhere in all that. And *soon*, Guillermo, soon. That deadline's getting close."

"I understand, Domingo. Anything else?"

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"Just details. You can handle them."

"Will do." Perales rose and went out. As soon as the door clicked shut behind him, Menéndez picked the phone up again and pressed a new sequence of intercom buttons.

"Public Information," a contralto answered.

"Menéndez," said the president. "I want to make a radio speech and announcement to the press, in an hour."

"Yes, sir. Domestic only, or international?"

"Everybody," Menéndez said darkly. "Everybody."

It took three days for Menéndez's statement to come to Clark's attention. There is a lot of news in the world; unless it is overtly sensational it tends to spread slowly from one area to another—particularly if it originates in an area not generally considered of great global importance. And sometimes it takes time for even an agency such as the Feedback Monitoring Division of the Central Information Service to recognize the importance of an item.

When this one finally reached Clark's desk, it came as a newsfax clip with a note attached from the division chief, scrawled in big red script and circled twice. "Read carefully," it advised. "This thing's already attracted far too much attention in underdeveloped countries."

Clark read carefully. "GUATEMALAN PRESIDENT CHARGES GENOCIDE," the headline proclaimed, and Clark's throat went dry as he read what followed. Key sections leaped from the page as if to bodily attack him. ". . . announced deadline and aid policies clearly discriminate against poor people and poor nations, wiping out large portions of their populations . . . Cannot reasonably be expected to make such radical changes as rapidly or as easily as those beginning with advantages of material well-being and superior education . . . Policies should compensate by giving extra aid in the form of special attention to efficient distribution and education. Instead, . . . quite obvious that powerful nations have been preferentially served. . . . Refusal even to consider a small extension seems to show Clark is determined to keep the disadvantaged that way. . . . Perhaps the resulting extermination is not actually planned, but . . ."

It stung. It had all been through Clark's mind thousands of times, but seeing it here, spread all over the world, still stung. For many reasons, not the least of which was the fact that it contained a large and ugly core of truth. Certainly not the part about deliberate genocide—nothing could have been farther from the truth, no accusation more painful. But the *de facto* discrimination against the poor and uneducated—there could be no denying that, anyway privately. It had bothered Clark every day since this thing began—but no one had ever suggested a workable way around it.

So what could Menéndez possibly hope to accomplish with his inflammatory tirade? Maybe he honestly thought some good could come of it; maybe, due to limited perspective, he really misunderstood things to that extent. But Clark knew it could pro-

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duce nothing better than divisiveness among people already strained almost to the breaking point. It was not the first public statement critical of his programs—not by a long shot. But it was the first that used quite that kind of language, that had that kind of punch and wide exposure . . .

It was the first that he saw as literally dangerous.

He stared at it for a long time, searching for a way around the decision he felt himself making. He found it odious, its implications far-reaching and distasteful . . . *But it's necessary*, he told himself grimly.

Is it? he shot back at himself. *Or are you just getting panicky because the deadline's getting close*?

Maybe a little, he admitted. *Everybody is. That's why it's necessary.*

He hesitated a little longer, recognizing some of the old indecisiveness in himself, recognizing that he must not let it come back. For an instant, he let himself consider again the idea of granting a short extension. Then he caught himself up sharply.

No, he told himself sternly. *You've rejected it, and you haven't found any new reason to change your mind. Right or wrong, you've decided it would probably cost more than it would buy. Live with it. Act on it. It's necessary!*

Reluctantly, he picked up a notepad and pen and composed a brief, firm message. He read it over once, then took it to the keyboard and set the controls to scramble, so nobody but Menéndez could intercept it.

Then he sent it, typing fast as if anxious to get it done before he changed his mind.

YOUR STATEMENT ABOUT ALLEGED GENOCIDE IRRESPONSIBLE, DANGEROUS, AND INTOLERABLE. I REQUEST AND STRONGLY URGE IMMEDIATE AND UNMISTAKABLE RETRACTION AND APOLOGY TO COUNTERACT DAMAGE ALREADY DONE. IN ANY CASE, THERE MUST BE NO MORE STATEMENTS OF THIS NATURE. REPEAT, THERE MUST (REPEAT, MUST) BE NO MORE

His head beginning to ache, he turned away from the keyboard. It was done. It was on its way.

Menéndez watched the printer in his office clatter briefly and read with growing disbelief as the message emerged. It did not clatter long—the message was so short that he barely made it from the desk to the printer before it stopped. It was so short that he read it through several times, fuming while a coldness grew in the pit of his stomach, before he really knew what his reaction was.

Censorship! So it had come to that. Never before now . . .

Or had it?

It was a new threat, or at least a threat newly come to light. It warranted its own strong response—and the world would see how Caesar Clark responded to *that*.

Meanwhile, Menéndez retained enough presence of mind to recognize that the old threat, the one that had prompted his statement, still remained. The genocide, planned or otherwise, was still going on. But now the public *was* aroused and Clark was on the run. The one thing Menéndez could not do now was let that drop.

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He had to pursue it, hard. The goal was still that delay. More—much more—was desirable, but that was the one thing he could actually hope to win for his people and all who shared their plight, all around the world. A little more time . . .

If he pressed his advantage. He stepped to his keyboard, thought briefly, and tapped out his reply, not bothering to scramble.

CONCERNING REQUEST FOR RETRACTION AND APOLOGY: CERTAINLY. I WILL ISSUE RETRACTION AND APOLOGY WITHIN TWELVE HOURS AFTER YOU ANNOUNCE DEADLINE EXTENSION OF AT LEAST TWO WEEKS. REPLY WITHIN TWENTY-FOUR HOURS. DO NOT (REPEAT, NOT) DISREGARD.

Twenty-four hours, he thought as he finished. *That's generous enough.*

And now there was this matter of the threat about no more critical statements. The world would be interested in hearing about that. Menéndez turned away from the keyboard and seated himself at the desk to begin composing his new statement on this latest turn of tyranny. He wouldn't release it until his deadline for Clark's reply, but he might as well begin getting it ready.

He felt strangely sure he would need it.

Less than an hour after he started that—during which he got little done, because of half a dozen urgent interruptions—Perales called him back. "I have information, Domingo," he said in a quiet, smug voice. "Do you have time to listen?"

Menéndez laid his pen down with grave satisfaction. "I certainly do."

"I'll be right there."

He was. Moments later, the Intelligence chief had slipped into the room, locked the door after himself, and settled into the carved chair facing Menéndez. "Information," he mused, flipping rapidly through a folder he had brought with him. "A good deal, as you can see, Domingo. Particularly good, I'd say, for a mere three days' notice. But," he said with a shrug and a fleeting plastic smile, "I didn't come to boast. I believe this item—" he pulled one double sheet out and laid it on top "—will be of most use to you. Your hunch, it seems, was a good one."

"My hunch?"

"Your hunch that Franz Gerber's rather precipitous descent into obscurity was a worthy object of curiosity. I had a couple of agents in New York concentrate on that, and their findings were quite interesting. It was not terribly difficult for them to talk to sources who were relatively close to Gerber but uninformed; such people were of little help. They gave only enough glimmerings of an underlying pattern to make us sure it was worth pursuing. Then it occurred to one of our agents that members of the Security Council who were present at the meeting at which Clark was made special emergency administrator had also been strangely quiet since then. The fact was only less obvious than in the case of Gerber because they had been less conspicuous to begin with. Our agents managed to interview a couple of them, and found that in certain areas they said very little, but looked to a trained observer as if they

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wanted to say a great deal more—"

Menéndez found himself growing impatient. "Come to the point, Guillermo. You have an excellent agency, but when I'm busy, I'm no more interested in hearing every detail of how they did their job than I'm interested in hearing every detail from my plumber. But I'm very interested in the results."

Perales broke off with a startled look and a barely perceptible sigh of disappointment. "Very well, Domingo. The results. My best New York agent finally managed—despite considerable difficulty—to spend half an hour talking to Gerber himself. He manipulated him, played on his emotions, and trapped him into an admission that he had not only been instrumental in maneuvering Clark into power, but had quite actively worked to conceal Clark's original role in starting the trip."

Menéndez's interest perked up. There was something not quite right about what Perales was saying, he half recognized. There was something that didn't quite make sense about Gerber helping Clark into power that replaced and transcended what he himself had already held.

But the disturbing wrongness of that was momentarily overshadowed by Menéndez's curiosity about what Perales's man in New York had found. "Well," he prompted, leaning forward, "what *was* Clark's role in starting the trip?"

"Exactly that," said Perales. "He started it. By himself. He singlehandedly made a deal with the aliens. We're not sure what his part of the deal was, but he told them to start the reaction. On his own, with no consent from any governing body, *he* told them to do it. And they did."

"Incredible!" Menéndez breathed. His mind raced, taking the shocking new fact and seeing how it drew together so many things no one had quite understood during the last several months. *Somehow* the Earth had been launched, with all the effects that had brought with it. People everywhere had been so busy working to survive those effects, and others yet to come, that they'd had little time to think about exactly how it had started.

Now, suddenly, it was clear—all too clear. To Gerber, and Perales, and Menéndez, and a handful of others in the entire tortured world.

As his thoughts assembled the picture, Menéndez's emotions mixed themselves into single cauldron of boiling acid. The frustration that had been simmering over the impossible task facing so many of his people now exploded into an enormous rage. To think that Clark was solely responsible for the entire complex of problems! Not only would he do nothing to improve their chances of solving the problems in time—he had *created* those problems in the first place.

He, and he alone.

There was little more for Perales to say. After he had gone, Menéndez sat staring at the summary sheet he had left. After a while he found the speech he had been working on, crumpled it, tossed it into disposal, and set savagely to work on a new one.

He finished that one in less than half an hour, and knew right away that it was a blockbuster. But, eager as he was to get it before the public,

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he forced himself to wait. Not out of any regard for honor in dealing with Clark—he no longer could muster that—but out of purely pragmatic regard for the safety of his country. For only Clark could grant the extension it so desperately needed.

But the deadline Menéndez had given Clark came and went, with no sign from either printer or telephone. Fifteen minutes later he was giving his speech, and within hours it was all over the world.

Far too early the next morning, he woke to an insistent pounding on his door and went groggily to answer it. He found himself staring into the faces of five men. Four of them wore the green and gold uniforms and carried the sidearms of UN security troops. The fifth was not uniformed, but it was he who stood in the center and addressed Menéndez. "Señor Domingo Menéndez Consuelo?" he said in resonant, flawless Spanish. He did not look the part: he was blonde and fair-skinned, and his high-necked blue suit was tailored to emphasize his considerable height.

Menéndez frowned warily. "Yes."

"I," said the stranger, "am Robert Novelli. I've just been appointed Emergency Administrator of Guatemala. You are relieved of your duties until further notice." He nodded slightly to one side. "Take him away."

Two of the UN troops stepped forward and grabbed his arms—firmly, but not viciously. "Don't struggle," one of them whispered in English. "There's no need for anybody to get hurt."

They led him off, stunned, as Novelli and the other two troops calmly went their separate way.

Once more Clark, who had kept out of sight whenever possible, found himself forced into the uncomfortable and unwelcome role of speechmaker. But this would be, quite possibly, the most crucial speech he had ever made.

It was all out in the open now. Menéndez's latest speech had spread so fast that within hours a hysterical populace had abandoned work for riots. They wanted Clark's hide. Too late, he realized that the attempt to silence Menéndez which had seemed too harsh had in fact been far too mild.

But too late it was—too late for prevention, too late for regrets. He had hoped to keep his role in the launch quiet, at least until time could better be spared for inevitable reactions. Hindsight said that that hope, like so many he had held in the past, had been misplaced. No matter; he had had it, and it was gone. In the next few minutes, it was up to him to turn it to his advantage.

For them, he reminded himself stubbornly. *Because if I can't get them together again, they're dead.*

He waited nervously for the cue to begin. He was at his own desk; he had just enough occasion to make public announcements that he had had a pair of television cameras permanently mounted here. Now there was a cameraman behind each of them, and he felt fidgety and very exposed before them.

But when the red light came on on one of them, his posture was poised and erect, his gaze into the camera confident and forthright, his voice

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solid and steady. "Word has reached me," he began, "that many of you are disturbed by a recent and unfortunate statement by President Domingo Menéndez Consuelo of the Republic of Guatemala—and by reports that Señor Menéndez has been removed from office and replaced by a UN official. Let me say at the very outset that both the statement and the report are true. It would not be in your interest, which I try to serve, to conceal the truth from you, or to dress it in pretty disguises. But let me further beg your indulgence to listen carefully as I explain *why* these things have happened."

Is that too much to ask? he asked himself. *To listen? Maybe so. Sometimes it seems people* never *really listen . . .*

He cut the thought off sharply. A performer can't afford to indulge in that sort of thing during a performance, and this was a performance that would take all the skill he could muster.

"Señor Menéndez," he continued after a pause that few listeners could have noticed, "has told you that I, on my own initiative, gave the Kyyra permission to begin moving the Earth. I confess: I did exactly that. But I make no apologies. I ask you to remember what things were like almost a year ago. The threat from which the Kyyra had offered to rescue us was still distant enough, and the rescue itself frightening enough, that we humans simply could not agree on a decision.

"Yet the threat was real and inevitable; there was no question about that. And the Kyyra were our only hope of even partially escaping it. If we did not go with them, we were all going to die. Period. In just a few years. I could not bear to see that happen. So when I had the chance to see that we would not condemn ourselves to that, I took it. It was the only way humanity was going to survive more than seventeen years—and only by being committed to the trip would we finally get together and do what we must to survive it.

" 'What did I get out of it?' some of you have asked. Nothing. Nothing except the hope that my species—our species—will survive. Personally, it has cost me a great deal. I have sacrificed my conscience, my peace of mind, to buy us this chance. Because I knew that if we started the trip this way, we would start unprepared, and many would die, and I would never be free of the guilt for their deaths.

"But I don't ask for your sympathy. I did not make the decision lightly. I knew what I was doing. I even knew that the destruction and death would fall most heavily on the disadvantaged. But not, as Señor Menéndez has suggested, out of any desire for anything so horrible as genocide. It would be so only because, despite our best efforts, those so disadvantaged simply could not absorb aid as fast as those starting from more fortunate circumstances. This, I think, has haunted me most of all. But the only alternative was for all to die—and who could prefer that to offering a chance to as many as possible?"

He paused, wondering whether his forehead was moist as it felt. He spoke his next words with special, gentle care. "Concerning Mr. Menéndez. I know the fear in your

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minds; my own is full of it. Censorship. Tyranny. Things we normally could not tolerate. But these are harsh times. There is much work to be done—so much that we cannot afford the luxury of the kind of discord fomented by statements like Mr. Menéndez's. If you doubt the danger of such statements, only look at yourselves and your neighbors in the last day or so. I think you will see why, during this emergency, I was not able to tolerate Mr. Menéndez's rash remarks—and why we will not tolerate similar actions in the foreseeable future."

He paused again, to let that sink in and to set off his conclusion. When he launched into that, his pace was faster and his voice again subtly changed—for he must end on a positive, hopefully stirring note. "So we must get back to work. More people will die, unfortunately, but the more diligent and heroic our efforts—all of us—the fewer they will be. I ask you this: think not of how many are dying, but of how many are not. For without these measures, we all would. Not today, but far too soon, and man and all his dreams would die with us. This way, there is a tomorrow—a tomorrow a long way off, but a tomorrow nonetheless. Hate me if you must; I'll understand. But cooperate with me—because there's no turning back, and it would be truly terrible to have gone through this to no end at all. I did what I did because I was sure, even though we could not get together last year, that we are a race well worth saving. Help me: together we will show ourselves, and the Kyyra, and the universe, that I was right."

He said no more. The light on the camera glowed uncertainly a few seconds longer, then went out. After that, Clark could only wait, filled with doubt. His audience was too remote and scattered for their applause or catcalls to reach his ears.

The first returns came in some three hours later, in a phone call from Bill Flamsteed, head of Feedback Monitoring. Bill had one of those voices that are too loud and jovial for a telephone, even when bearing good tidings. He bore them now, Clark supposed, though his feelings were mixed.

"Tremendous, boss, tremendous!" Bill boomed. "I heard it myself—inspired and inspiring."

"Knock it off, Bill," Clark said gently. He felt tired and vaguely embarrassed. "What did anybody else think?"

"Same thing. Not everybody; I won't claim that. But I've got reports from field men in two dozen spots around the world. General consensus is that it worked wonders. Most places, most people are back to work and in better spirits than they've been in weeks. And more solidly behind you than ever before. When you came on, they would have boiled you in oil if they'd had the chance. When you finished, they were cheering."

"Hmph." *Well*, he thought, oddly discontent, *that's what I was after, isn't it? So what's the problem*? "Have you heard anything from Guatemala?"

"Just a minute." A brief silence, during which Flamsteed presumably checked his notes. "No. Not yet."

"Okay. I'll be interested in that

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one." (*And a little afraid to look at it.*) "Look, Bill, I've got to get some rest. Keep me posted—but with notes instead of calls unless something really urgent comes up. Okay?"

"Sure, boss."

Clark hung up and walked slowly over to the cot he'd had brought in for days when he was too busy to go back to his apartment to sleep. He lay down, eyes closed, and tried to relax, despite a weird mixture of exultation and disgust.

So he'd pulled it off. Gradually, he'd learned what it took—how much of the truth, what visual image, what intonations, what gestures, what figures of speech . . . He'd seen evidence that he was learning before, and if Flamsteed's preliminary reports held water, he'd come a long way. He'd even become coolly, professionally methodical about it. He pretty much knew what he was doing when he spoke now, and what effect he could expect.

Don't be so cynical, he scolded himself. *It's part of what you have to do. For them.*

For them. Do I still believe that? he wondered. *I hope so. I really hope so.*

Involuntarily, he found himself thinking of a man called Hitler, about whom his parents and uncles and grandparents had had stories from their own memories. Frightening stories, for this Hitler was a man who had orated and schemed his way to both power and popularity . . .

And today Clark had won the cheers of millions with words about saving humanity—just hours after he had had a noble and well-meaning man dragged from his office and thrown in prison for speaking his mind.

He shuddered.

The rest of the day was not very productive. Flamsteed sent him several more reports of reactions to the speech, generally supporting the first batch. There were still pockets of resistance—Guatemala, not surprisingly, was one of the worst. But, in general, popular support for Clark and his programs was at an unprecedented high, and soaring.

He went to bed early, but he didn't sleep well. But at least the dreams didn't come.

Not quite.

In the morning, as Clark breakfasted on a feeble imitation of scrambled eggs in the dining nook of his apartment, the phone rang insistently. Mouth full, Clark went to answer it, but he consciously resisted running for it. The last couple of days had reminded him forcefully that a man with too much to do will reap only short-term gains by too much haste to do it all.

He picked up the phone. "Henry Clark."

"Bob Novelli," the faceless voice identified itself. Clark's imagination supplied the face, while wondering irritably why Novelli should be calling him personally this soon. "Hope I didn't get you up."

"No. No matter, anyway. What's up?"

"Well . . . to put it bluntly, things are out of hand, and I'm not getting them back. I heard your speech, and I heard it made a big hit in most places. But not in Guatemala."

Clark frowned. "Exactly what

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seems to be the problem?" He refrained from adding, *That you can't handle yourself.* He had never felt really confident of Novelli's abilities; he had never really liked him personally. Privately, he had thought when he sent him that Guatemala deserved better. But Novelli was who was available. He was there, and Clark would back him.

"They're not listening," said Novelli, a bit defensively. "I don't think we had any idea just how popular this Menéndez guy was. The people love him. They heard your words about saving the race, but all they really see is that Menéndez is in the clink and I'm in his chair and they want nothing to do with me. The only thing keeping me alive is a heavy bodyguard from the UN. But I'm not getting anything done. The cabinet and palace staff pretend they don't even hear me. Nobody outside's doing any work. When they get Menéndez back, they say, but until then nothing else matters. It's crazy, but that's the way it is. I can't apply any force with local resources; I'm practically a prisoner in his office. I think I need some UN troops, Mr. Clark."

"To gun them down?" Clark snarled. "Look, Novelli, have you forgotten what you're down there for? We're trying to help them stay alive. Massacres don't fit in with that. Listen . . . this problem's a lot more delicate that you realize. I'd better think about it and call you back."

"All right. But don't think too long. Oh . . . I guess I ought to mention one other thing."

"Yes?"

"*One* of them *has* been talking to me. Menéndez. Keeps raving about wanting to talk to you. Demanding, he says." Novelli's voice sneered, but Clark made himself ignore that.

"I thought Menéndez was in prison."

"He is. But he still says he has to talk to you. That's all he'll say. He's frantic."

Clark mulled it over without saying anything. Finally he reached his decision. "Put him on," he said quietly.

"Er . . . I can't right now, sir. He isn't handy. And he wants a picture-phone connection."

"Okay. Do it. My office. Within the hour." He hung up.

The call came back in half an hour—a half hour which Clark spent alternately wondering what they were going to talk about and what he could do to get Guatemala working again.

He had never met Menéndez, but he had seen newsfax pictures. The face that formed on the picture-phone screen was familiar—swarthy, strong, proud.

But, in addition, it was now surprisingly, obviously contrite.

"Everything has come out wrong," Menéndez said in English with only the faintest trace of accent—and even that, Clark suspected, due only to stress. "Horribly, horribly wrong. I still am not convinced you were right, but, as you say, that doesn't matter now. What matters is that I was trying desperately to win my people a better chance, and I ruined it beyond my wildest nightmares. I didn't understand why they couldn't have it, and I thought I could make you change. But it's backfired. I see now the pressure isn't going to work. But

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because of my efforts, the very people I was trying to save are up in arms over me and not getting anything done to help themselves. I tried to make it better for them, and I made it worse."

"So it seems," Clark agreed, sourly and sympathetically at the same time. "I suppose you called to suggest something?"

"Yes. Let me talk to them."

Clark stiffened warily. "How do I know you won't make things still worse?"

Menéndez looked pained. "Please, Mr. Clark, can't you see that's the last thing in the world I'd want to do? I've done enough damage; all I want now is to fix it. That's what you want too, isn't it?" He leaned earnestly closer to the pickup. "Still, I understand your desire for assurance. Very simple. Let me tape my speech, under supervision of whoever you appoint. Let me tell them I was wrong, and you, under the circumstances, are right. Let me tell them that no matter what has happened to me, they must cooperate with all their might with this puppet of yours. Because only so will Guatemala survive. I understand them, Mr. Clark, and they understand me. I can tell them that so they will believe it; I doubt that anyone else can. And you can check the tape privately and broadcast it yourself."

"Hm-m-m." Clark thought it over. It might well be what was needed—but Menéndez didn't carry it far enough. "Sounds fair enough," Clark said slowly. "But let me make you a counterproposition, Señor Menéndez. Let me ask you a favor."

It was Menéndez's turn to be wary. "What's that?"

"Would you consider taking your job back?"

Menéndez stared incredulously. Finally he said, "You can't mean that."

"Yes, I can. If one speech from you would do as much as you think—and I tend to agree—how much better would your actual return to the presidency be? I think you can lead Guatemala through this as nobody else could."

"True. But you couldn't trust me. There has to be some catch."

"Nothing very subtle," said Clark. "Oh, you're quite right . . . after what's happened, I couldn't turn you completely loose. I'd have to keep very close tabs on you. I have to have somebody who's going to cooperate in that job."

"You're asking me to be a *puppet*!" Menéndez exploded. "Like . . . like Novelli!"

"I don't like to think of it that way," Clark said quietly. "But yes, it would amount to that. But your people don't have to know."

Menéndez's glare was infinitely contemptuous. "You dare ask me to lower myself to that level?" he hissed. "And to hide the truth from the people whose respect I've earned by trust? One speech is one thing; a lifetime of humiliation is another. You don't know what you're asking!"

"Yes, I do," said Clark, as quietly as before. "Far better than you realize. What I'm asking is something I'd never ask anybody unless I were desperate. I am. I'm pleading, Señor Menéndez. We both want the same thing: we want your people to pull through. I think this is what you can do that will help them the most.

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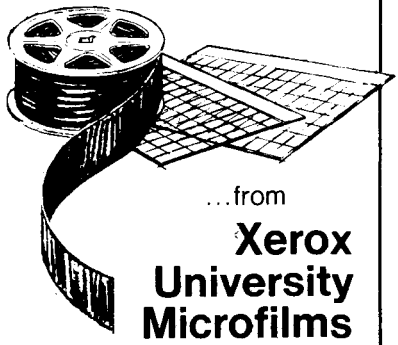

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You'll get no medals for it; you may feel like a heel. But you'll know what you did. Think about it. Can you help them more another way?"

He waited, feeling tense, projecting calm. Menéndez was silent a very long time, his face an agonized mask of confusion, suspicion, and profound distaste. But at last he said, very quietly, "You win, Mr. Clark. I'll do it."

"Hopefully," said Clark, "we *both* win."

He hung up, when it was over, with a feeling of deep respect for this man he'd never met. He could appreciate, as perhaps very few others could, the sacrifice Menéndez was making.

We're more alike than you realize, he thought in silent salute. *If I may say so.*

Clark watched Menéndez's tape twice before he sent it on to the CIS for translation and broadcast. His Spanish was not as good as he sometimes wished, but it was good enough that two screenings made him sure the speech was one of the most moving things he had ever witnessed. It would not affect anybody else in the same way, of course, but he felt confident that it would have the effect that both he and Menéndez desired.

The frantic few weeks that followed between then and the deadline proved him right. With Menéndez back in "power," and playing the part so well that few ever suspected his humiliating deal with Clark, Guatemala rallied to a last-ditch effort that inspired all who watched. And with Guatemala's example, and the Menéndez affair apparently cleared up, and the CIS driving hard for solidar-

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ity, the pockets of resistance in the rest of the world dwindled and they, too, approached the deadline with heroic determination.

It wasn't enough, of course. The most deserving do not always get the best treatment from the universe; heroic determination and nobility of spirit can go only so far as substitutes for proper tools and knowledge of how to use them. When the deadline came, there were such New Year's Eve parties as people could manage, and on Day One, Month One, Year Two, the Kyyra began raising the thrust inside the Earth. And the new quakes came to places like Guatemala, and some weathered them but again a discouraging number didn't.

And this time, it was worse for those who didn't. For when their houses fell down, there was no food for them to eat while they rebuilt, and the sky was cold and black and starry all day. Many died under that sky and no one came out to bury them.

Such things happened in many parts of the world, but for Clark the images of Guatemala were especially vivid and painful. But he was far too busy arranging help where help could be arranged to think too long at a time about it. And there was, on the positive side, the fact that this time many more people and homes emerged virtually unscathed. For that, there was a growing consensus that the high survival rate was owed very largely to Clark's leadership.

For eight months the acceleration crept upward, multiplying tenfold, and people struggled to cope with the changes it brought. Sometimes—often—coping was far from easy. Many times during those eight months Clark felt sure the dreams of Dianne would return.

But, ironically, it wasn't until the end that they actually did.

That day the acceleration stabilized at the value that would be held until further notice, and possibly all the way to the jump to super-c. That would require more preparations, too, but for now the urgency was gone. Now, for the second time since the trip began, there was the prospect of relative peace and stability—for a while. In the old days, there would have been dancing in the streets; now, people didn't go out in the streets unless they had to. But there were celebrations. Wild celebrations, even big celebrations, where people gathered by radiophone and laughed and drank with people they couldn't see or touch, and hopped from one celebration to another with the turn of a dial. Clark did some hopping—listening more than participating—and found that, now that that phase was over, he was the object of a kind of worship he could not have imagined when he made that crucial decision of twenty months back.

Worship? Yes. For the survivors, that decision, once viewed by many as an act of betrayal, had become an act of salvation.

And Clark found the role of savior even more uncomfortable than that of ruler.

He grew more and more uneasy as he visited the celebrations, hearing the boisterous laughter and the unpolished songs portraying him as a jolly good fellow, until finally he was sure he wanted no more. At that point he switched off the radio and went to bed, telling himself that by reaching

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this milestone he had earned a rest.

Many shapes, shadowy and disquieting, moved in his sleep. One of them, for the first time since the trip began, was Dianne.

He watched, half afraid, as she slowly approached him. She was fairly young again, honey-blonde, wearing a yellow dress that faded out into vague mists around the edges. She came quite close without speaking, without even showing any expression, and he feared that when she tried to speak, no words would come—or, worse, laughter.

But, for the first time since the Kyyra had come, it was not that way. "Problems?" Dianne said, simply and softly.

He was overjoyed. There was still an aloofness, a coolness, but it was a beginning. Finally he had Dianne to talk to again, at least in his dreams.

He nodded. "A few."

She studied his face, then let her eyes wander slowly down his body and back up. "You have blood on your hands," she said matter-of-factly.

He looked down at them and saw them red and wet. He looked back at Dianne. "Yes," he agreed. He added defensively, "So does a surgeon."

She looked at his hands again. Her face showed a hint of a dubious frown, her shoulders a hint of a shrug. "Perhaps," she said.

"There's another thing," he said, feeling frustrated. "I gave a speech. I said, 'Think not of how many are dying, but of how many are not.' They're taking me too literally. Now that they've *made it, they're forgetting too fast. All the ones who didn't make it, who starved, got sick—"*

"Maybe they have to," she said. He noticed that she was farther away now; her voice sounded farther still. She wasn't walking (though he couldn't see her feet), but she was receding.

"But they like me too much," he complained. "Nobody should like a dictator that much. That's what worries me most."

"As long as you worry about that," said Dianne, "I won't. When you stop worrying, then there'll be something to worry about." She had turned away and was receding faster, becoming less distant, fading back in among the other dream-forms.

"But don't you see the problem?" he called after her, frantically, afraid he was losing her again. "How do they get rid of me? I read a story once where men kept deposing tyrants and then becoming tyrants themselves 'for the duration of the emergency.' But they never quit until somebody deposed them, and it just kept repeating. How are they going to get rid of me, or somebody like me, when all this is over?"

Dianne's voice drifted back to him, a pensive murmur from very far away. "Hmm," she said. "That is a hard one. I'll see what I can think of."

And then he saw her no more.

Somewhere along there he realized that he was no longer quite asleep, but lying in his bed and his own sweat, staring into darkness and an uncertain future.

So will I, *he thought with determination.* Between us, we'll think of something.

After that, he slept. ■

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PURE GOLD

Jack Gaughan

You can't cheat an honest man!
Lord St. Davids

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Chris Lauder was poor, honest, and fond of the sea. He also had a mathematical mind.

The first two facts meant that he worked in a bank, and the second two that he was a yachtsman and member of that unusual body, The Amateur Yacht Research Society.

It is no good trying to explain what research that body does. It would be much easier, and provide a shorter list, to say what it doesn't do. It is usual for its research to have something to do with boats (not necessarily yachts), but it has been known to wander far afield.

Chris was unusual only because the whole Society is, though I have not (yet) heard of any other member becoming involved the way he did . . .

He had built his own boat, if that is the right description for it. You will soon see why no exact description of it is possible but it can do no harm to describe it in general terms.

It had more than one hull, and sometimes more than two, if what it had were hulls. It also had a mast, or a structure which served some such purpose, and some sort of wings or sails. It also had some multishaped projections underneath and out to either side at times.

It never was given a name, other than "That Thing", and the way his research went prevented it from ever being written up in the sailing Press.

All the trouble started when Chris became tired of the daily dullness of the bank and decided to build the boat. Being a young man of a cautious and pragmatic nature, he took advice.

He had heard about the Amateur Yacht Research Society from a bank client who had foolishly tried to get finance for his pet nautical invention and had been very properly turned down. From him he had borrowed a book, and read it. From then on he was hooked.

Books written by A.Y.R.S. members are not meant to be read, except for the first page, which explains what the author is trying to do, and the last chapter, in which he attempts to explain his results.

Chris didn't know this, and he solemnly started reading and studying the chapters of graphs and mathematics which filled the center of the book. Being exceptionally gifted, he understood them, and even found a side issue arising from a formula, which meant . . . and here he started daydreaming.

It took a lot of space to build "That Thing", and he only succeeded because he had a friend who had a plastics factory with an empty shed near Poole Harbor. Even so, it had to be built in sections and taken on trailers to a slipway to assemble.

In spite of all difficulties, the great day came when, together with some A.Y.R.S. members who thought they knew where he was going, he got "That Thing" launched, stepped aboard, and set off.

Being, as I said, a cautious young man, he was wearing a life jacket so

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he came to no harm, and he didn't have to swim very far to get ashore.

"That Thing" was later towed back to the slipway by a motorboat. It had partly dissolved into its component parts but was undamaged if you agreed, as some did, that certain new curves in its structure were an improvement.

So Chris went back to his drawing board.

It wasn't all that wrong, just a redesign here, a bit stronger there, and yes indeed that extra bend *did* help, and soon the second great day came. This time Chris had the motorboat ready. "That Thing" took off with a huge leap, and in spite of all Chris's attempts to steer it ended up stuck high up on a mudbank. As the mud in Poole Harbor is deep and sticky, and the tide was falling, he had plenty of time to think of further suitable alterations.

So finally a third great day came, and it worked!

For over an hour Chris sailed about at vast speeds, dreaming happily of winning all the prizes for World Speed Records under sail. Reluctantly at last he came in, took her to pieces and trailed her back to the shed. A careful checkup, admittedly after a lot of beer had been drunk, showed nothing wrong.

Happily Chris set about adding to "That Thing" a small light cabin for cruising and the necessary safety equipment and stores which were needed to go to sea.

Then his annual holiday came, and Chris took "That Thing" out of harbor, and for some days was the terror of all normal sailing craft, many of whose skippers, on seeing him, went below and locked their drinks cupboards.

But something was going wrong. It was rapidly becoming harder to steer "That Thing". She was becoming difficult to keep on course. Chris headed back for Poole, but he didn't make it. Suddenly "That Thing" went out of control, and became totally unsteerable. Luckily Chris had invested in an inflatable boat and an outboard, and with it he towed "That Thing" to port.

And this is where, though he did not know it at the time, Chris's whole life changed. He could find nothing wrong except one strut which supported (detail deliberately omitted) which had become coated with a heavy yellow substance. He had to unbolt the damaged part. He took it to his shed to examine and got a spare to replace it. Then he set off again, but by the end of his holiday the new strut was getting as bad as the first, and he had to head back for Poole Harbor.

After his holiday Chris had a lot of piled-up work at the Bank. It was two weeks before he could work at Poole again. It was important to remove the unwanted deposit, find out what it was, and stop it forming. It looked almost metallic, like a sort of hard yellow butter, very heavy. It looked like, surely it couldn't be, gold? He took a blowtorch to it, and it seemed

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to melt at about the right temperature, so he melted some into a small cup. The rest he let drip into a bucket.

Many people use banks, so Chris had no difficulty in finding an analytical chemist and in making an appointment. Late that afternoon he was sitting in the office of Mr. James Cyprus-Jones with a small dirty truncated yellow cone lying on the table between them.

Mr. Cyprus-Jones (this is not his real name, but as the story goes on you will see why I have disguised it) was a very skeptical man, as was necessary to survive in his profession. "It looks like gold, and its heavy enough," he said. "How did you get it?"

Chris told him, and Mr. Jones's expression slowly worked itself into as near a look of utter disbelief as he ever allowed when facing a client. "All right," he said, "you leave it with me for a few days. I'll give you a ring when I've finished with it."

He picked up the yellow lump and tossed it into a drawer.

Chris could only return to work and daydream, but he was beginning to feel pretty sure of what Mr. Cyprus-Jones would tell him.

And tell him he did. It was a very different Mr. Jones who deferentially ushered him into his office when they next met. He offered him coffee or any drink he preferred. Then he got down to business.

"I carried out preliminary tests myself," he said, "and it's gold all right." He put a sheet of paper in front of Chris. "I did not trust my knowledge beyond that point," he added, "so I took it to a proper assayer, and this is his report."

Chris read: "This sample of gold is unique in my experience. It is, as far as all usual contaminants are concerned, chemically pure beyond the power of known methods of purification, except for two factors. It appears to have been produced by a method involving the salts normally found in seawater, and has later been carelessly cast without any precautions being taken for cleanliness. There are none of the usual trace elements which would indicate the geographical source of this gold. Its contamination with sea salt suggests that the sea may be its origin, but if so its method of extraction is not one currently known to science."

Chris looked up to see Mr. Jones eyeing him carefully.

"Now young man," he said, "I want the exact truth about this gold. First of all, did you come by it honestly?" Chris was shattered to the depths of his honest banking soul by the incredible accusation, and his face and his blurted out assurances carried complete conviction. "Then," said Mr. Jones, "can you assure me that everything that you have told me about your extraction of the gold is the absolute truth?"

Again Chris convinced. Mr. Jones did some very hard breathing.

"You are in very great danger," he gasped. "Inexperienced. You need

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friends. Partners. Very, very difficult business, gold. Crooks, powerful combines, large vested interests, laws, national interests. I have friends in the business, good people, very experienced. You must accept help."

Chris thought of his present position, not only without the protection of patents but even without an idea of why "That Thing" produced gold. He said so. It only made Mr. Jones more eloquent. "You need scientific help for that. My own qualifications." He put a large fat pudgy hand on Chris's arm. "Young man, this is your great chance. Accept help now, and we can all be rich. Very rich. You must have help."

Chris tried to imagine Mr. Cyprus-Jones's more than portly figure sailing "That Thing" and failed hopelessly.

"It is very kind of you," he said, "but I think I ought to go away and think about it. I may have a shot at producing a theory myself. I will come back if I need help."

He rose to his feet, picking up the neat little ingot which was how his gold now was. Mr. Jones flopped about, afraid to say too much or too little.

Chris went off up the street. Mr. Jones sat down to think hard.

Chris knew what his great difficulty was. It was that he had no money. Patents, lawyers, all the things and people he needed, all cost money. Clearly the best way to go was to pile up a great heap of gold.

So every hour he could find, Chris took "That Thing" to sea, and gold ingots started to collect under his workbench.

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Then came the evening which made the next great change in Chris's life. It was a Friday, and he set off for Poole, only to find on the way to the station that he had left his cash at home. He returned to the flat, deciding to have a quick snack from the reserve of stores for "That Thing" and then set off again. The flat looked untidier than ever, and he opened the cupboard where sailing clothes, rigging, and tinned food formed a vast untidy heap. What should he open? Sardines? Spam? Or a slice of that fresh ham? HAM? He had never put such a thing in the cupboard! He poked it with his finger and it SQUEAKED! "It's all right," said the ham, "I'll come quiet-

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ly!" There was an earthquake among the heaps, and a girl came out. She was pretty enough, even in a dishevelled state, but what interested Chris was her big handbag, which was bulging with papers which he realized were the plans and calculations for building "That Thing".

Chris had never seen industrial espionage before, but he recognized the enormous value of the plans to build the fastest sailing craft afloat which, as a sideline, produced free gold. He grabbed the bag. "You're a thief!" he said. "Well, there's only one thing to do. I will call the police."

At that the girl, who seemed up till then undecided whether to look doleful or smile at him, burst into tears and dropped to her knees in front of him!

"No! Oh No! Not the Police!" she howled. "I'll tell you everything!—who employed me—everything! But please not the police! But (and here she broke into fresh howls) Mum mustn't know! She's very ill and she would *die* if I was arrested! She doesn't know I work for a commercial spy agency! And I would l-lose my job, and I need the money to look after her! Do what you like with me—anything! anything at all! But let me go! I'll tell the agency that there's nothing here to find, and they won't bother you again."

Chris was attracted by the idea of stopping further raids, and also rather liked having a pretty girl more or less served up to him on a plate, so he paused.

"Right," he said, "I'll have to search you, and tie you up to make sure you don't escape, then I'll consider what to do."

She nodded. "If you wish," she said.

She stood up, and Chris found that searching a very short-skirted girl for hidden weapons was a very enjoyable occupation. So was tying her up and putting her on the sofa.

He poured himself a drink, and she asked for one, too. They talked. She was most forthcoming about the methods of industrial espionage. She knew a lot.

It was clearly necessary to search her more thoroughly to make sure none of those devilish devices she described were concealed on her person. The process was adjourned to the bedroom.

How one records what happened for the rest of the night depends on where this is to be published. But I am not writing that kind of account, so I will put this part to one side. I will pass on to the next morning, when a rather bleary-eyed girl was making coffee in a small kitchen and an overlarge upper half of a pair of pajamas. She grinned at a pajama-bottomed Chris as he emerged from shaving. He looked surprised.

"Aren't you getting dressed?" he said. "Surely your mother must be worried by now at your not being home?"

She laughed, "Mum? I haven't got one! That was just a come-on last night!"

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He gasped. "Don't you *ever* tell the truth?"

"Not unless it's useful. You don't even know my name yet!"

"Would you tell the truth if I asked you?"

"Probably not, though I may if I go on liking you."

"In that case," said Chris, "I will name you myself. I will call you '. . . '."

Even this girl gasped, though she giggled at a name which was appropriate enough after the night's episodes, but she said nothing, so I will have to call her that.

Chris had been thinking hard while shaving.

"How are your morals?" he asked.

"How do you think they are?"

"Absolutely abysmal, which is why I have a proposition for you."

"What, another one?"

"Yes, though not like that. Tell me, are you well paid?"

"We-ell, I do it for the money. Why?"

"I am discovering that this business needs depths of deception which I cannot run to. What about becoming my partner?"

For one moment ". . ." gaped at him and gulped, then: "What's in it for me?"

"Evens, everything. Work, bed, flat, boat, gold. Roll up sleeves and help."

"Sold, it's a deal. Partner!" She went into his arms. "When do we start?"

"Coffee now, and planning."

Chris soon learned from ". . ." that his plan to sell gold till he had enough money for patents and lawyers was simply not possible. The fact was that any attempt to sell this extraordinary gold, legally or illegally, would at once cause it to be assayed, and its impossible purity and its contamination with sea salt would set off a mad gold-rush of crooks who would hunt them down, force the secret from them, and probably murder them. She was sure it was Mr. Cyprus-Jones who had got her employers to send her. She also pointed out that publicity, which Chris in his honesty promptly suggested, would be disastrous. As soon as it became known that gold could be extracted from seawater as cheaply as aluminum, the fall in its price would destroy the value of the gold he already had.

Between them they worked out a strategy. They would give up their jobs and their flats. They would sell everything and buy a big old cheap seaworthy boat, to live aboard and use as a base for "That Thing".

They would sell the lead ballast of their sailing house and gradually replace it with disguised gold.

When they had enough, they would sail away, taking "That Thing" either in tow or packed up on board, to some place where they could sell the gold. They would then go quickly elsewhere and tell the truth about the whole business, handing "That Thing" over for scientific investigation, to prevent crooks chasing them for the secret. The price of gold could then do what

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it liked. In the good old British Naval phrase (bowdlerized), "Damn *you* Jack, I'm inboard!"

And so they did. Six weeks later two happy young people were living aboard a big old sailing ketch in Poole Harbor, sailing "That Thing" by day, melting gold into ingots in the evenings and enjoying themselves very much morning, noon and oh especially at night.

But what about Mr. Cyprus-Jones; and had it never happened to an industrial espionage agency that their agent had joined the opposition? Some firms have a policy for such occasions. The young couple should have expected what happened.

Very soon there came a day when they were far out at sea, running down Channel before the wind. They always kept well out if they could. It excited less attention. Nearby boats were apt to come and look at them, and they needed privacy when harvesting the gold. That day there was a motor-yacht near them and coming to look at them. They suspected nothing wrong till two of its crew trained tommyguns on them. Chris might have given in at once, but ". . ." was not only a determined young lady but in the interval she had become an excellent sea-woman.

"Get on a reach!" she yelled, and Chris understood and put the helm over.

Two things need explaining to a landsman. One is that no sailing craft sailing downwind can go faster than the wind, but a suitable craft can go twice as fast as the wind, or more, if "reaching", which means going across it.

"That Thing" turned across the wind, and was off and away. The motor-yacht turned to follow them, and that was a mistake and the second thing a landsman should know. A motor-craft lying across the wind and parallel to the waves rolls like a pig, and is the worst possible platform to shoot from. That is the position which Nelson got the combined French and Spanish fleets into at Trafalgar and was why his ships were so little knocked about. "That Thing" was well shot at, but got away untouched. With its overwhelming speed it left the motor-yacht far behind, and with England in plain sight their enemy was only a dot on the horizon.

But the wind fell light, and steadily the dot grew larger. ". . ." looked at Chris in despair. "Only one thing for it," he said, acting as he spoke. "Launch the inflatable boat, mount its motor, and leave "That Thing" to sail herself."

"But," ". . ." expostulated, "she'll be wrecked, and they are faster than the dinghy anyway and they'll catch us."

"No," said Chris. "They can only see our mast. We are still hull down below the horizon. They won't see us leave and they will follow her. She'll run herself ashore somewhere. We can always rebuild her if damaged, but they must not catch us!"

And so it turned out. Chris and " . ." got safely back to Poole, and

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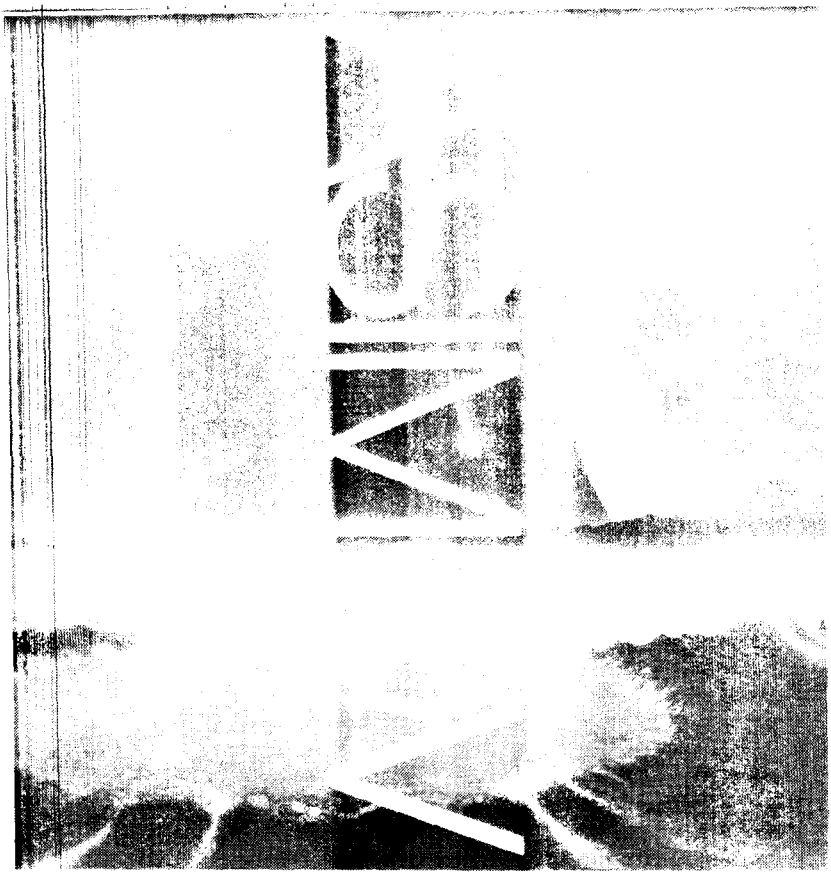

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they found "That Thing" a day or two later. She had put herself hard on some rocks at high tide, but being very light the damage was not fatal, though her structure now had some fresh bends in it. A couple of weeks of work put her right, and they took her out again.

But it was a gloomy council of war that they held that evening.

There was nothing wrong with "That Thing". She was sailing as well, or better, than ever. The trouble was that she no longer produced gold, and they hadn't the least idea of how she had done it, why she had stopped, or how to make her do it again. Worse still, as ". . ." pointed out, they had only got gold below worth about £100,000 at a free market price, and whenever they managed to sell it they would get very much less then that. Perhaps only half. Their great plans were in ruins.

Perhaps in their misery they didn't watch out as much as usual. Before they managed to react to it there was a boat alongside, footsteps on deck, and two gunmen in the cabin with guns trained on them. The gunmen were followed in by a benevolent-looking character rather like an archbishop or very experienced family solicitor. He was therefore, of course, a very senior gangster Boss.

"Put those things away," he ordered the two gunmen. "We are not here to hurt anybody. And all sit down. We need a little talk." He looked round as everyone obeyed, then turned to Chris and ". . .".

"You know, you are two very lucky young people, but very unwise. You take great risks."

"You mean like the other day?" snapped Chris. "We certainly beat you then!"

"Pooh!" the Boss nearly spat. "That was not us. We would have been more careful. You have many, many enemies. But we are your friends. Look at this." He put a piece of paper on the table in front of them. It was a bank draft made out to Chris for £2,000,000. They goggled at it as he went on: "Let me put it like this. An invention like yours, who is it of most value to? The people who want to steal it and use it? If they did, at once the value of gold falls to nothing. They get little money, much work. No, it is worth much more to us. We have all the gold in the world. If your invention is used, and the price of gold falls, we would be sorry,"—a tone of menace entered his voice—"very, very sorry."

One gangster shook his head sadly. The other took out his handkerchief and wiped his eyes. The Boss continued: "You get this small reward for your trouble when you sign this." He put another piece of paper on the table. "It is a promise never, never to use your invention or tell it to anybody."

"But," said Chris, his natural honesty overcoming his recent training; but ". . ." was too quick for him.

She burst into tears and flung herself at the Boss's feet.

"Oh we promise!" she howled, and

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Chris was far enough advanced in theoretical and applied villainy to admire her artistry. "We promise! We'll *never* ever make any more gold!" She seized the pen which the Boss held out and frantically scribbled a signature on the document.

Chris quickly signed too. "And what about Mr. Cyprus-Jones?" he asked.

The Boss sneered. "Him? He is a nothing! We visit him, tell him to be good."

"And any others?" asked Chris. "You said there were more?"

"We talk to them. But I advise you young people to go a long way away. For you there will always be some risk."

". . ." turned to him. "We quite understand you want your gold price protected, and we will keep our bargain. But we already have a lot of gold. You would not want us to sell it cheap. It would start the trouble all over again. Can we sell it to you, at a price which gives you a good profit? And can we have all the money paid in dollars in New York? With just, say, £50,000 in sterling to buy some things before we leave?"

The Boss smiled at her. "You are are a very wise young lady. It is a pleasure to do business with you." He drew the agreement to him, took the pen, wrote in some additional sentences, initialled them, and the happy couple added their initials. He rose to his feet and motioned to his men to leave. "In the next day or two we collect the gold, pay you a fair price for it and bring you a nice new draft in dollars. Yes."

As he stepped into the motor-craft lying alongside he said, "We wish you safety and a long life. We watch you!"

Chris and ". . ." just managed to wave good-bye before staggering below and bursting into howls of laughter!

To wind up this account, all went as stated.

The gold and the money changed hands. They sold the ketch, which now has some iron ballast. They bought a lovely big fast-cruising trimaran, and have vanished over the horizon. Whether they are in Tobago or Tahiti or just plain at sea I don't know and they don't care. They sold "That Thing" to other A.Y.R.S. members before leaving, and she is still around. She is not easy to identify, as many of our members build things like this, and many of them get called "That Thing".

We members of A.Y.R.S. have had several good laughs recently at the most unlikely people who have been buying our books, attending meetings, and asking questions. I can put their minds at rest.

Before leaving, my young friends asked me to do for them what they could not do once they had gone, and finally protect them from Mr. Cyprus-Jones and his friends in the only possible way.

That is by telling the exact truth, and here it is. ■

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Vincent Di Fate

Part IV. In any conflict between cultures, one cultural pattern will emerge dominant over the other, just as in conflicts between people.

George R.R. Martin

SYNOPSIS

Dirk t'Larien, jack-of-many-trades and interstellar wanderer, is on the planet Braque when he receives a package containing a whisperjewel, a gem that can be psionically impressed with a particular mood or emotion. This particular jewel holds the mem-

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AFTER THE FESTIVAL

ories of his love for a woman named Gwen Delvano, with whom Dirk had been deeply involved seven years earlier, when both of them had been students on the university world of Avalon. They had had a pair of such gems esper-etched, and had exchanged them with the promise that whatever the future might bring, each would come to the other in time of need, if summoned with the jewel.

Dirk, very much an idealist during his years on Avalon, has become a tired and disillusioned man since, a man who believes in very little; the whisperjewel and its memories dis-

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turb him greatly. In the hope that Gwen is calling him back, and that with her he can once again become the sort of person he was, Dirk decides to answer the summons. He traces the whisperjewel back to the rogue planet Worlorn, and takes passage.

Worlorn is a world melancholy and abandoned, moving on a path that will someday remove it from the galaxy entirely. During a long passage through a spectacular multiple-star system, it was terraformed and made the site of a great cultural fair, the Festival of the Fringe, designed to demonstrate the strength and technological sophistication of the fourteen outworlds that lay on the far side of the interstellar gas cloud called the Tempter's Veil. The Festival was a great triumph, but it ended a decade ago, when Worlorn first began to recede from the Wheel of Fire. Today the rogue planet is habitable only by courtesy of an artificial heat-shield; its nights are black and almost starless, its days long twilights. Only a handful of people live in the fourteen great Festival cities.

Gwen, notified of Dirk's impending arrival, meets him at Worlorn's spacefield, but it is a strange, strained reunion. Dirk receives several shocks. Gwen is cool and distant; she wears a bracelet of jade and silver on her left arm, and she does not speak of why she sent the whisperjewel. Her aircar is the oddest he has ever seen, a massive armored vehicle shaped like a manta ray, or—Gwen explains—in the image of the black banshee of High Kavalaan, an aerial predator. With Gwen is a stranger, a plump Kimdissi ecologist named Arkin Ruark, who is assisting her in her study of Worlorn's wilderness. The greatest shock of all—Gwen is 'married.' Her bracelet is a sign of her union with Jaantony Riv Wolf high-Ironjade Vikary, a highbond of Ironjade, one of the four great Kavalar holdfast-coalitions.

Dirk, confused and disappointed, returns with Gwen and Arkin Ruark to the mountain city Larteyn, built of a light-retaining rock called glowstone by the men of High Kavalaan. Gwen leaves them, and Dirk stays with Ruark that night, but he finds himself very restless, unable to sleep, and finally ascends alone to the roof of their tower. Jaan Vikary (as the Kavalar introduces himself) finds him up there, watching the dawn. Jaan is wearing a laser sidearm, and two bracelets—a silver-and-jade twin to Gwen's on his left arm, another of iron and glowstone on his right. He is cordial but formal. "This is not Avalon," he tells Dirk, but with his warning he gives Dirk a collar-pin shaped like a tiny banshee, as "an emblem of my friendship and concern for you." Dirk promises to wear it, and Jaan escorts him to breakfast.

Over food, Dirk meets the third member of the Kavalar household, Garse Ironjade Janacek, who wears an iron-and-glowstone bracelet that matches the one on Jaan Vikary's right arm. Janacek is Jaan's teyn; *Gwen is* betheyn *to Jaan,* cro-betheyn *to Garse. Tensions clearly exist, visible even to Dirk, the outsider. Janacek is an abrasive, aggressive knife of a man; despite Jaan Vikary's efforts to keep him under control, he insults Gwen and Dirk freely during the meal, with obvious relish. Dirk dislikes him immediately.*

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After eating, Gwen takes Dirk out into the forests of Worlorn, to give him the flavor of the dying world, and a little background on her project. They travel on sky-scoots, tiny flying platforms just large enough to hold a single person. Gwen is very practiced at it, Dirk very inept. It is the first time they have been alone. When they finally land, Gwen seems to have warmed toward Dirk considerably, but she rejects him when he tries to kiss her. Then he calls her "Jenny," a private name he used for her when they were lovers on Avalon; Gwen responds with anger. She says that Dirk had always loved Jenny, a phantom whose image he had fastened on her, and never the real Gwen Delvano; that was why she left him. She also tells him a little of Jaan's name and history, and of Kavalar naming philosophy, "Give a thing a name, and it will somehow come to be." A Kavalar is the sum of all his names, she says. However, when Dirk stubbornly asks Gwen if she is happy, she replies evasively.

Finally she takes him walking through the wilderness of Worlorn. They talk only of the plants and animals around them. But decay and death are everywhere, and Dirk soon grows depressed. They race back to Larteyn on sky-scoots, Gwen winning easily.

When Dirk returns to Arkin Ruark's rooms, he finds the Kimdissi waiting for him. They drink together and begin to talk. Ruark, unprompted, begins to answer questions Dirk has not even posed to Gwen. Deeply hostile to the Kavalars and the code duello culture of their planet, Ruark describes Jaan and Garse as violent, dangerous men who are incapable of love—their language does not even have a word for it. Kavalars use women only as slaves and breeders and status symbols, Ruark says, and that is what Gwen has become. She wants to escape, but is hopelessly trapped. That is why she sent Dirk the whisperjewel; he is her last chance. Dirk resolves to learn the truth of the matter and help Gwen to freedom, whether she loves him or not.

The next morning, Dirk walks into the Kavalar apartment in the middle of a raging argument. Jaan Vikary is quarreling with a huge older man, a gray-haired giant who is introduced as Lorimaar high-Braith Arkellor, a Kavalar of another holdfast. Garse Janacek and Gwen are also present. Lorimaar is complaining bitterly about young Kavalars who do not keep the old customs; he spits venom at both Dirk and Gwen. But Jaan Vikary finally forces him to back down and apologize, and Lorimaar storms out. Janacek also leaves, and Dirk demands an explanation from Jaan. Instead he gets a history lesson; Jaan is a historian by profession, and he begins to tell Dirk about his planet's long history of war, and especially about legendary demons—weres and shape-changers—called "mockmen."

Dirk, impatient, presses his point, and the truth finally comes out. Lorimaar is one of a group of very traditional Kavalars who have come to Worlorn to hunt mockmen, since the practice has been outlawed on High Kavalaan itself. Jaan and Garse, alone, are trying to stop them by reaching potential victims first, and

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naming them korariel*—or protected property—of Ironjade with small collar-pins. Furious, Dirk removes the pin Jaan had given him and returns it. "I am nobody's property," Dirk says. "I've been taking care of myself for a long time, and I can keep on taking care of myself." Gwen supports him, and Jaan reluctantly accepts the pin. Before leaving, however, the Kavalar tells Dirk the cause of the morning's arguments; Lorimaar had sighted Dirk the day before, and was angry at the shield of Ironjade that kept him from his mockman. Without the pin, and the threat of Ironjade dueling prowess to back it up, Dirk will be fair game for Lorimaar and the other hunters from Braith holdfast.*

Gwen and Dirk spend the rest of that day touring some of the empty Festival cities by aircar. The cities they visit during the daylight hours, each reflecting the culture of a different outworld civilization, are all dead, deserted, melancholy. Dirk wonders out loud whether Larteyn is the only city that still harbors life. In answer, Gwen flies him to Challenge, the city built by ai-Emerel, a soaring windowless silver tower two kilometers high, totally automated, computer-run and fusion-powered, designed by the Emereli to outlive even the death of Worlorn. Although virtually empty, Challenge is still fully powered. Gwen and Dirk land and are greeted warmly by the omnipresent city brain, the Voice of Challenge, which whisks them to a sumptous dinner in an automated restaurant. Over coffee, when both of them are feeling mellow, Dirk asks Gwen whether anything is left of her old love for him. Reluctantly, she admits there is. Dirk begins to press her to leave Jaan Vikary and come back to him, but Gwen insists that it is too late. Dirk persists, and finally Gwen, with growing bitterness, admits that she is not happy in her current relationship with Jaan and, more particularly, with Garse Janacek. Yet she is not eager to return to Dirk either; she has grown cynical about the prospects of ever finding happiness. Their discussion grows progressively more heated, until Gwen finally cuts it off and tells Dirk that she has another city to show him.

It is full night when they arrive at Kryne Lamiya, the city built by the people of Darkdawn, nihilists whose world lies on the furthest outer edge of the Fringe, near the Great Black Sea of intergalactic emptiness. Kryne Lamiya is a city set in the wilderness, a bone-white necropolis of slim towers and dark canals, ringed by buildings that look like human hands clutching toward the sky in agony. The city has a song. The Darkling engineers were masters of weather control, and the mountain winds blow down on the city, shifting as necessary to sound notes amongst the musically-designed city spires. The song Kryne Lamiya plays is the great symphony of the composer Lamiya-Bailis; a dark wild song of hopelessness and despair and futility. "A song of twilight and the coming of night," Gwen says to Dirk, "with no dawn again, ever. A song of endings." With the music all around them, Gwen tells Dirk that this *was the city she had wanted to live in, that Lamiya-Bailis was right, that nothing works and nothing has meaning, and because of that she will never come back to Dirk.*

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It is only the fact that their love is over that makes it seem good, she says.

Dirk rejects her despair, and Kryne Lamiya, in a hot fury, insisting that the city's death-hymn is a lie, that they have to stand against it, fight it, try. *Gwen wavers, and seems unsure; Dirk does not press. They return to Larteyn in a cold silence.*

Back in the Kavalar city, Gwen tells Dirk that she will see him the next day, but before she sends him to bed, she gives him a copy of Jaan's thesis, a massive document that explains Kavalar myth, including the mockman legend, in historical terms. Dirk spends most of night awake, reading Vikary's account of Kavalar society, and his tentative theories as to how the modern sociosexual patterns of High Kavalaan evolved. By dawn, he is convinced that everything Arkin Ruark told him was true. He determines to get Gwen away from Jaan and Garse.

When he wakes at midday, however, Gwen and Jaan are both missing, as is Arkin Ruark. Garse Janacek does not admit Dirk to the Kavalar apartment, insisting that Gwen has gone out into the wilds with Ruark to work. Dirk suspects this is a lie, since he heard Gwen arguing with Jaan and Garse the previous night.

Dirk talks his way into the apartment, thinking that Gwen might be a prisoner in her own room, but there is nothing to his suspicions. Once inside, however, Dirk is verbally assailed by Garse Janacek, who saw through his ruse all along. The Ironjade points his laser at Dirk in a half-mocking manner and warns him that he will not be permitted to take Gwen away from Jaan Vikary—Janacek will stop him. "I am bonded by fire-and-iron to Jaantony high-Ironjade," he says. "We are teyn-*and-*teyn *. . . no bond that you have ever known is as strong." Garse accuses Dirk of misunderstanding everything about High Kavalaan and its people. When Dirk, in reply, cites Arkin Ruark, the Kavalar (who loathes the Kimdissi ecologist) decides there is no use talking to him. He throws him out and leaves.*

Dirk, abandoned and alone in Larteyn without transportation, has no idea where Jaan, Gwen, or Ruark might be, but a chance phrase dropped by Garse Janacek gives him a clue. He checks it out and concludes they are in one of the other cities. Then he descends to the city's great underground garage to search for a working aircar. He finds one, but is surprised while inspecting it by its rightful owners, a pair of the Braith hunters.

His captors are an odd pair. One, Chell, is very old, very traditional, almost senile. But Chell's teyn, *Bretan Braith Lantry, is a handsome youth—handsome, that is, except for one side of his face, which is a mass of grotesquely twitching scar tissue. One of his eyes has been replaced by a glowstone that shines redly in the dark. Dirk has given the Braiths grievous insult by breaking into their car, but it is unclear where responsibility lies. If Dirk is* korariel *of holdfast Ironjade, then Jaan and Garse must answer for his misdeed; if he is a free human, he must duel the Braiths himself; if he is a free mockman, then he is only prey. The Braiths escort Dirk back to his tower,*

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there to await the return of the Ironjades and the resolution of the affair.

Jaan and Garse return at evening. Jaan immediately tries to effect a compromise, insisting that while Dirk is no man's property, he nonetheless enjoys Ironjade protection. But Garse Janacek, grinning, points out that Dirk has rejected that protection. Bretan, eager to avoid a duel with the Ironjades, immediately challenges Dirk, to Jaan Vikary's horror and Janacek's amusement. Vikary then tries to salvage the situation by deliberately provoking Chell, hoping that he can exchange his apology for the other side's grudging forgiveness of Dirk's transgression. The technique backfires; Chell challenges the Ironjades. Two duels are set for the following dawn. Bretan, an accomplished and very deadly duelist, will first face Dirk alone, with blades. Then Chell and Bretan, teamed, duel Jaan and Garse, with lasers.

In the Kavalar apartment, Vikary forces a grudging truce between Dirk and Garse Janacek. The three men drink together, discussing the duel to come, and Dirk finds himself feeling strangely at home, even with Garse, whose barbed humor requires some getting used to. But then Gwen Delvano and Arkin Ruark return from the forest.

Under the guise of putting Dirk to bed, Ruark whisks him off to talk privately. Gwen soon joins them. Ruark is aghast at the impending duel; he warns Dirk that Bretan will kill him, urges him to run away and hide. Dirk refuses, arguing that the Ironjades have made him a holdfast-brother, that he has an obligation to stand by them as Jaan Vikary stood by him. But one by one Ruark destroys his arguments, until all that is left is Dirk's wordless determination to see it through. Gwen intervenes then, and tells Dirk that he has made her decision for her; if he must honor his obligation to Jaan Vikary, so too must she honor hers. Dirk hesitates, then reconsiders. If Gwen will come with him, he says, he will abandon the duel. She agrees. They pack quickly, take Jaan Vikary's aircar, and set out secretly into the night, telling no one—not even Ruark—their destination. By dawn they have reached Challenge, where they hope to hold up until a starship arrives to take them from Worlorn.

That evening, they reach Arkin Ruark by viewscreen, secretly, and he tells them the news. The duel between the Braiths and Ironjades has been postponed; Bretan argued that he had the right to kill Dirk before risking his life against Jaan and Garse. Garse Janacek was absolutely furious about Dirk's treachery; Jaan Vikary was stunned and silent. The Braith arbiter has declared Dirk mockman, fair game for all, but Gwen, although a fugitive, is still betheyn, *protected by Jaan's silver-and-jade.*

Gwen is visibly relieved after the call, happy that Jaan is still alive.

Then the city lights begin to dim. Fearing a power failure, Dirk and Gwen start toward the tubes, when a voice booms out of the walls at them. It is no longer the Voice of Challenge, however; it is Bretan Braith Lantry, demanding that they surrender.

Unarmed and unable to face the Braiths who have taken Challenge, Gwen and Dirk flee toward their

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aircar, two levels away, with hunters on their heels. They reach the car safely, but realize, guiltily, that they have led the Braiths down on innocent Emereli survivors, who will now be run down as mockmen. Dirk argues that they must run, must save themselves first; Gwen, angry, accuses him of selfishness, and compares him unfavorably with Jaan Vikary. Shamed, Dirk does only thing he can; he calls Jaan in Larteyn and asks for help.

Jaan agrees to come for the sake of the Emereli, although he warns Dirk that there will be blood between them after this is over. Jaan also tells Dirk that he has an obligation to go out into the open, draw attention to himself, so the hunters will come after him, *thus buying time for the Emereli. The Ironjade tells Dirk he has a weapon. It is not until after the connection is broken that Dirk realizes what is meant; the armored aircar.*

Gwen then takes charge, armed at last and eager to revenge herself on the Kavalars who have treated her as something less than human for years. She takes the aircar out along the Outer Concourse, a great corkscrew boulevard that runs around and around the tower city, top to bottom. Descending in gray darkness, they come across a Braith hunting pack; two hunters, teyn-*and*-teyn, *and a brace of huge savage hounds. Gwen blinds them with her headlamps and runs them down, killing one of the men and just missing the other. Dirk is appalled and shaken, and he sees a hardness in her he had never seen before. As they continue to descend, he begs her to avoid killing the next group of Braiths they encounter. She refuses, bombarding him with tales of hunters taking human heads as trophies, until Dirk finally gives in to her. When they meet a second pair of hunters, Gwen crushes one beneath the car and strikes the second a glancing blow with one of its wings, a blow that snaps his spine.*

Other Braiths, in aircars, close in on them at the base of the Emereli tower city, but Gwen evades them in the darkness. At Dirk's suggestion, they then abandon the aircar and flee on sky-scoots through the long unused subway tunnels that lead from one Festival city to the next. Exhausted, and thinking themselves safe, they fall asleep in a dusty tunnel several kilometers outside Challenge.

Dirk wakes to a light in his face, a strange laugh, and a sharp kick to his head. Two Braith hunters, strangers to him, have tracked and trapped them. Gwen is already bound and helpless. Dirk tries a clumsy attack on their chief captor, the sadistic Pyr, a skilled tracker who traced them after all the others had been misled, and who hopes to have Dirk as his personal prey in a traditional mockman hunt. Dirk's awkward lunge is futile; Pyr is a master with a small hardwood baton he carries, and he beats Dirk into insensibility.

When Dirk recovers consciousness, two other Braiths are present, and he is being carried back to Challenge on a litter. Pyr is having an argument with a man named Roseph, who is warning Pyr that young Bretan has a prior claim on Dirk and will be angry about Pyr's claim to the offworlder. Pyr is openly contemptuous of Bretan. When they reach Challenge

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again, Pyr tells Roseph to summon the other hunters to settle the dispute. The four already present are soon joined by six others, among them Lorimaar, Chell, Bretan, and Myrik, the hunter who escaped Dirk and Gwen on the Outer Concourse. Bretan and Pyr have just begun to argue about Dirk when Myrik breaks in and asks, "What of the bitch?" The others are shocked; as a woman, protected of Ironjade, Gwen is to be returned to her masters. But Myrik, wild with grief at the death of his teyn, *insists that he will kill her, and reveals that it was Gwen, not Dirk, piloting the fatal aircar. The Braiths are still arguing when Jaan Vikary and Garse Janacek arrive on the scene. Jaan forces them to remove Gwen's bonds. When he discovers that she still wears his silver-and-jade bracelet, he begins to issue challenge to Myrik, but Gwen stops him, rejecting his protection. She faces Myrik openly, and takes sole responsibility for the death of his* teyn, *offering to meet him in duel.*

Myrik snaps at the improper suggestion, thinking that Gwen is mocking him. He falls on her suddenly and they struggle. Myrik smashes her skull repeatedly against the metal side of an aircar, until Bretan drags him off.

Vikary examines Gwen; Dirk, cut loose of his own bonds, joins him. She is alive, but has at least a concussion, perhaps worse. Garse Janacek, furious, issues challenge to Myrik. Then Jaan rises and draws his laser. Garse is aghast; Myrik must be killed cleanly, in code duello, or all honor will be lost. Jaan is past caring. Myrik gave Gwen no choices, he replies, and will get none in return. When Garse tries to dissuade him, Jaan turns his weapon on his teyn.

Jaan kills Myrik and wounds Lorimaar. As the others attack, Jaan, Dirk, and the unconscious Gwen flee in a stolen Braith aircar.

There is no pursuit. They fly to Kryne Lamiya, the nearest habitable city, and hide in one of the towers. Dirk sleeps restlessly, haunted by nightmares, while the sullen dishonored Kavalar nurses Gwen through the night. In the morning, Dirk and Jaan talk. Jaan confesses the difficulty of their situation, and his great fear—that Garse Janacek, shamed by Jaan's trespass, will now take up arms against his outlaw teyn. *Jaan talks achingly of the long, intense relationship between himself and Garse, and swears that he will not defend himself against his* teyn, *whom he has hurt enough already. He asks Dirk for a pledge of loyalty; Dirk gives it. Then Jaan reveals that he intends to return to Larteyn to find Arkin Ruark, Gwen's friend, who is now in great danger from the Braiths. Dirk is left behind with Gwen and a laser rifle.*

Shortly after Jaan takes his leave, Gwen recovers consciousness. She asks Dirk what has happened, and he tells her. When he mentions how Jaan turned his gun on Garse Janacek, her reaction makes everything plain; she still loves Jaan Vikary, intensely, far more than she loves Dirk. Dirk accepts this almost philosophically; he has long since guessed. He feels one with the music of Lamiya-Bailis, but he continues to converse calmly. He finally asks Gwen, curiously, why she sent him the whisperjewel if it was hopeless all along.

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Gwen is puzzled. She denies sending him the jewel. It is back at home in Larteyn, she insists.

Everything falls into place then. It was Arkin Ruark, Gwen's friend and confidant, who knew about the jewel, and it was Ruark who sent it. It was Ruark who poisoned Dirk against the Kavalars, Ruark who convinced Dirk he had to run from the duel, Ruark who told Gwen she had to run with him, to save his life. It has been Ruark all along, Ruark the Kimdissi manipulator, playing Jaan and Dirk against each other for reasons of his own. And it is Ruark the betrayer whom Jaan Vikary, hours ago, went off to rescue. Jaan is overdue.

Dirk, angry, anxious for revenge, more than a little suicidal, leaves Gwen and finds an abandoned aircar still in working order. He heads back towards Larteyn, to help Jaan Vikary if he can, and face Ruark if he is too late. En route, above the wilderness, he comes on two lights; a crashed Braith aircar, burning, and a ring of electric torches where the other hunters have set up camp. The stolen aircar that Jaan Vikary was flying is grounded near a lake at the edge of their camp. Dirk surmises that Jaan has fled on foot into the wild. Helpless to intervene, he continues on toward Larteyn.

Ruark's rooms are empty, but Dirk recovers his whisperjewel, all that remains now of his lost love, his Jenny. Upstairs, in the Kavalar apartment, he finds Garse Janacek sleeping off a drunk amidst the ruins of a destructive spree. Dirk wakes him at rifle point, and tries to enlist his aid. At first Janacek refuses scornfully. His teyn *is dead, the Ironjade insists, Jaan has broken all their bonds. But Dirk throws Garse's own words about the strength of the fire-and-iron bond back at him. Finally Garse gives in; he switches sides completely and enthusiastically.*

They fly off to confront the hunters in Janacek's aircar, a massively armored battle vehicle, centuries old war-surplus. Garse relates the history of the car and talks about the long hatred between Kavalars and Kimdissi. Dirk, weary and frightened of the conflict ahead, finally asks Garse if he has a plan to save Jaan.

"A very simple plan, in truth," Janacek says. He snatches Dirk's laser suddenly and puts it out of reach. "I will hand you over to Lorimaar."

CHAPTER TWELVE

Dirk was not startled. Beneath his clothing the whisperjewel was still cold against his skin, reminding him of past promises and past betrayals. He had almost ceased to care. He folded his arms and waited.

Janacek looked disappointed. "You do not seem concerned," he said.

"It doesn't matter, Garse," Dirk answered. "When I left Kryne Lamiya, I expected to die." He sighed. "How is all this going to do Jaan any good?"

Janacek did not answer at once; his blue eyes appraised Dirk carefully. "You are changing, t'Larien," he said at last, the smile gone from his face. "Do you truly care more about Jaan Vikary's fate than about your own?" He frowned then and, receiving no answer, continued. "I considered a landing in the Braith camp and a direct confrontation. I rejected the

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idea. My deathwish has not waxed so greatly as yours. While I might call one or several of the hunters to duel, it would be too obviously in aid of a criminal outbonder. They would never face me. My own status is tenuous at the moment; because of my words and actions in Challenge, the Braiths still think me human, although in disgrace. Should I openly seek to help Jaan, however, I would taint myself in their eyes. The courtesies of code would no longer rule. I too would become a criminal, a probable mockman.

"A second alternative was to attack them suddenly, without warning, and kill as many as we could. I am not yet so depraved as to consider that idea. Even Jaan's deed against Myrik would be clean compared to such a crime.

"It would be best, of course, if we could fly in and locate Jaan and get him away, safely and secretly. Yet I see little chance of this. The Braiths have hounds. We have none. They are experienced hunters and trackers, particularly Pyr Braith Oryan and Lorimaar high-Braith himself. I am less skilled, and you are useless. The chances are excellent that they would find Jaan before we did."

"Yes," said Dirk. "So?"

"I am being a false Kavalar in aiding Jaan at all," Janacek said in a faintly troubled voice. "Thus I will be just a bit more false. In that lies our best chance. We will fly in openly, and I will hand you over, as I have said. That act should gain at least a grudging trust from them. Then I will join the hunt, and do all that I can short of murder. Perhaps I can provoke a quarrel and call some of them to duel in a manner that will not make it seem as though I am protecting Jaan Vikary."

"You could lose," Dirk pointed out.

Janacek nodded. "Truth enough. I could lose. Yet I do not think so. In singled duel, only Bretan Braith Lantry is a really dangerous antagonist, and he and his *teyn* are not among the hunters, if the aircars you saw are all."

"And if you can't trick them into dueling?"

"Then I can be near when they run down Jaan."

"And then?"

"I do not know. They will not take him, though. I promise you that, t'Larien. They will not take him."

"And meanwhile, what about me?"

Janacek looked over once again, and once more the blue eyes regarded him thoughtfully. "You will be in great danger," the Kavalar said, "but I do not think they will kill you immediately, and certainly not as I will hand you to them, bound and helpless. They will wish to hunt you. Pyr will probably claim you. I hope that they will cut you free and strip you and set you to running in the forest. If some of them elect to hunt you, less will be hunting Jaan. There is another possibility as well. In Challenge, Pyr and Bretan were near to quarrel over you. Should Bretan ever join the hunters, it is likely they would resume the conflict. We can only benefit by that."

Dirk smiled. "Your enemy has an enemy," he said sardonically.

Janacek grimaced. "I am no Arkin Ruark," he said. "I will help you if I can. Before we enter the Braith camp,

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we will drop—dark and secret, if we can—to this downed aircar you say, this dead fire. We will leave your laser in the wreck. Then, after they have cut you free and sent you naked into the forest, you can make for the weapon, and hopefully surprise those who come after you." He shrugged. "Your life may depend on how fast and straight you can run, and how accurately you can fire your rifle."

"And whether I can kill," Dirk added.

"And whether you can kill," Janacek acknowledged. "I can give you no better chances, t'Larien."

Dirk did not have long to reflect on Janacek's words. They dropped down through the night like some impossibly light boulder, and flitted wraithlike above the tops of the chokers. The wreck still smouldered a dim orange and a haze of smoke obscured its contours. Janacek hovered over the crash, opened one of the great armored doors, and tossed the laser rifle to the forest floor a few meters below. At Dirk's insistence, he also threw out the Braith jacket Dirk had been wearing, whose fur and heavy leather would be a godsend to a man running naked through the forest.

Afterward they soared straight up again, high into the sky, and Garse bound Dirk hand and foot—the thin cords tight and painful, threatening to cut off circulation, and so very authentic. Then, after flicking on headlamps and running lights, Janacek took them swooping toward the circle of lights.

The hounds were staked out and sleeping by the water's edge, but they woke when the strange aircar descended, and Janacek landed in the midst of their wild howling. Only one of the Braiths was about, Pyr's *teyn*, Dirk knew, though he did not know the name. The man was sitting by a low campfire near the Braith hounds, a laser rifle by his side, when they first saw him, but he scrambled to his feet swiftly enough as they came down.

Janacek unsealed the massive door again, swinging it up and open and letting the cold night flow into the warmth of the cabin. He pulled Dirk to his feet and shoved him roughly outside, forcing him to kneel in the cool sand.

"Ironjade," the man on guard said harshly. By then, his *kethi* had started to gather, pulling themselves from their sleeping bags and piling out of the aircars.

"I have a gift for you," Janacek said, his hands on his hips. "An offering from Ironjade to Braith."

The hunters were six in number, Dirk saw as he looked up from where he knelt; all of them had been in Challenge. Bald, bulky Pyr had been sleeping outside near his *teyn*; he was the first one on hand. Soon afterward Roseph high-Braith and his quiet muscular companion joined them. They too had been asleep on the ground near their aircar. Lastly Lorimaar high-Braith Arkellor, the left side of his chest wrapped in dark bandages, came slowly from the domed red aircar, leaning on the arm of the fat man who had been with him before. All six of them appeared as they had slept; fully dressed, and armed.

"The gift," Pyr said, "is appreciated, Ironjade." He wore a sidearm on a black metallic belt, but his baton

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was missing, and he looked almost incomplete without it.

"Your presence is *not* appreciated," Lorimaar said, as he struggled to join the circle. He was leaning much of his weight on his *teyn*, so that he seemed hunched and broken, no longer quite the giant he had been.

"We will not tolerate your interference, Ironjade. Blood-gift or no," said Roseph.

"Truth," Lorimaar said.

"I do not seek to interfere," Janacek told them. "I seek to join you. An animal roams the forest, wearing my fire-and-iron. I would help you kill it, and reclaim the thing that is mine." He sounded very hard, very convincing.

One of the hounds was stalking back and forth impatiently on its chain. It growled, and stopped long enough to wrinkle its rat's face at Janacek and bare a row of yellowed canines. "He is a liar," Lorimaar high-Braith said. "Even our dogs smell out his lies. They do not like him."

"A mockman," added his *teyn*.

Garse Janacek turned his head very slightly. The shifting firelight woke red highlights in his beard as he smiled his thin and threatening smile. "Saanel Braith," he said, "your *teyn* is wounded and thus insults me with impunity, knowing I cannot call on him to make his choices. You enjoy no such safety."

"For the moment he *does*," Roseph said harshly. "That is a trick we do not allow you, Ironjade. You will not duel us, one by one, and save your outbond *teyn*."

"I have sworn that I have no wish to save him. I have no *teyn*. You cannot strip me of my rights under the code."

Roseph stared at Janacek and refused to flinch. "We are on Worlorn," he said. "And we do what we will." Several of the others muttered agreement.

"You are Kavalars," Janacek insisted, but a flicker of doubt passed across his face. "You are Braiths and highbonds of Braith, bound to your holdfast and your council and its ways."

"In years past," Pyr said with a smile, "I have seen many of my *kethi* and even more the men of other holdfasts abandon the old wisdoms. 'This and this and this are wrong,' the mincing Ironjades would say, 'we will not follow them.' And the sheep of Redsteel would echo them, and the womanly men of Shanagate, and sadly many Braiths. Are my memories false? You stand and preach code at us, but do I not recall the Ironjades, in my youth, telling me that I may hunt mockmen no longer? Am I misremembering the soft Kavalars who were sent to Avalon to learn spaceships and weaponry and other useful things, who returned full of lies about how we must change this way, and that way, how so much of our old code was a thing of shame, when it had been so long a pride to us? Tell me, Ironjade, *am* I wrong?"

Garse said nothing. He folded his arms tightly against his chest.

"Jaan Vikary, once high-Ironjade, was the greatest of the changers, the liars. You were not far behind," Lorimaar said.

"I have never been to Avalon," Janacek said simply.

"*Answer me*," Pyr said, "Did you

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and Vikary not seek to change old ways? Did you not laugh at the parts of the code you disliked?"

"I have never broken code," Janacek said. "Jaan—Jaan would sometimes—" He faltered.

"He admits it," fat Saanel said.

"We have talked among ourselves," Roseph said, in a calm voice. "If highbonds can kill outside the code, if the things we know as truth can be changed and disregarded, then we too can make changes, and shun false wisdoms we do not care for. We are bound by Braith no longer, Ironjade. It is the best of holdfasts, but that is not good enough."

"You see, Ironjade," Pyr said, "you call us false names."

"I did not know," Janacek said, a bit slowly. He looked at Lorimaar. "You have made a new holdfast."

"I am Lorimaar Peln Winterfox high-Larteyn Arkellor," Lorimaar said in his hard, pain-filled voice.

"Honor to your holdfast," Janacek answered, holding himself stiffly, "honor to your *teyn*."

"We are all Larteyns," Roseph said.

Pyr laughed. "We are the highbond council of Larteyn, and we keep the old codes," he said.

In the silence that followed, Janacek's eyes went from one face to the next. Dirk, still helpless and kneeling in the sand, watched his head move, turning from one to the other. "You have named yourself Larteyns," Janacek said at last, "and so you are Larteyns. All the old wisdoms agree on that much. Yet you are only six," Janacek said, "and Worlorn is dying."

"Under us, it will thrive again," Roseph said. "News will go back to High Kavalaan and others will come. There is time, and our sons will be born here, to hunt these chokerwoods."

"As you will," said Janacek. "It is no matter to me. Ironjade has no grievance with Larteyn. I come to you openly and ask to join your hunt." His hand dropped to Dirk's shoulder. "And I bring you a blood-gift."

"Truth," Pyr said. To the others: "I say let him come."

"No," said Lorimaar. "I do not trust him. He is too eager."

"For a reason, Lorimaar high-Larteyn," Janacek said. "A great shame has been put on my holdfast and my name. I seek to wipe it clean."

"A man must keep his pride, no matter the pain," Roseph said, nodding. "That is truth enough for anyone."

"Let him hunt," Roseph's *teyn* said. "We are six and he is alone. How can he harm us?"

"He is a liar!" Lorimaar insisted. "How did he come to us here? Ask yourselves that! and look!" He pointed at Janacek's right arm, where glowstones burned like red eyes in their settings. Only a handful were missing.

Janacek put his left hand on his knife and slid it smoothly from its sheath. Then he held out his right hand to Pyr. "Help me hold my arm steady," he said in a calm conversational tone, "and I will cast away Jaan Vikary's false fires."

Pyr did as he was asked. No one spoke. Janacek's hand was sure and quick. When he was finished glowstones lay in the sand like coals from a scattered fire. He bent and picked one

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up, tossed it lightly into the air and caught it again, as if he were testing its weight, smiling all the while. Then he drew back his arm and threw; the stone sailed up and off a long way before it began to fall. Dirk almost expected it to hiss when it sank into the lake's dark waters. But there was no sound at all, not even a splash at this distance.

Janacek picked up each of the glowstones in turn, rolled them in his palm briefly, and gave them to the lake.

After that there was no more trouble.

"Dawn is near upon us," Pyr said. "Set my prey to running."

So the hunters turned their attention to Dirk, and it went much as he had been told it would go. They cut him free of his bonds and let him rub his wrists and ankles a bit, to get his blood moving once again. Then he was pushed back against an aircar and Roseph and fat Saanel held him still while Pyr himself cut his clothes away. The bald hunter handled his little knife as deftly as he did his baton, but he was not gentle; he left a long cut down the inside of Dirk's thigh, and a shorter deeper one on his chest.

Dirk winced when Pyr slashed him, but made no effort to resist. . . . until he was finally naked, and beginning to shiver in the wind, his back pressed too hard against the cold metal flank of the aircar. Pyr frowned suddenly. "What's this?" he said, and his small white hand wrapped around the whisperjewel where it hung against Dirk's chest.

"No," Dirk said.

Pyr yanked hard, and twisted. The fine silver chain dug painfully into Dirk's throat; the jewel popped free of its improvised clip.

"*NO!*" Dirk shouted. He threw himself forward suddenly and began to struggle. Roseph stumbled and lost his grip on Dirk's right arm and went down. Saanel hung on grimly. Dirk punched him hard in his bull-thick neck, just beneath his chin, and the fat man let go with an oath, and Dirk swung around at Pyr.

Pyr had picked up his baton. He was smiling. Dirk took a single quick step toward him and stopped.

That was enough of a hesitation. Saanel slid a thick arm around his head from behind, and began applying a headlock that gradually turned into a choke.

Pyr watched with disinterest. He thrust his baton into the sand and held the whisperjewel between thumb and forefinger. "Mockman jewelry," he said disdainfully. It meant nothing to him; there was no resonance in his mind with the patterns esped-etched into the gemstone. Perhaps he noticed how cold the little teardrop was to his touch, perhaps not—but he heard no whispers. He called to his *teyn*, who was kicking sand onto the fire. "Would you like a gift from t'Larien?"

Saying nothing, the man came over and took the jewel and held it briefly, then put it into a pocket of his jacket. He turned away unsmiling and began to walk around the perimeter of the Braith camp, extinguishing the ring of electric hand-torches planted in the sand. As the lights went out, Dirk saw that the first blush of dawn was on the eastern horizon.

Pyr waved his baton at Saanel.

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"Release him," he ordered, and the fat man undid his chokehold and stepped away. Dirk stood free again. His neck ached, and the dry sand beneath his feet was coarse and cold. He felt very vulnerable. Without the whisperjewel, he was somehow afraid. He looked around for Garse Janacek, but the Ironjade was off on the other side of the camp, talking intently to Lorimaar.

"Dawn is already here," Pyr said. "I can come after you at once, mockman. Run."

Dirk glanced over his shoulder. Roseph was frowning and massaging his shoulder; he had fallen hard when Dirk yanked loose. Saanel, smirking, was leaning back against the aircar. Dirk took a few hesitant steps away from them, toward the forest.

"Come, t'Larien, I am certain you can run faster than that," Pyr called out to him. "Run fast enough, and you may live. I will be on foot as well, and my *teyn*, and our hounds." He took out his sidearm and tossed it away. "I will carry no laser, t'Larien," Pyr continued. "This will be a pure clean hunt, of the oldest sort. A hunter with his knife and his throwing-blade, a naked prey. Run, t'Larien, run!"

Dirk spun and began sprinting for the edge of the wood.

It was a run out of nightmare.

No sooner had he gone three meters into the trees than he cut his foot on a sharp rock in the dark, and began to limp. There were other rocks. Running, he seemed to find them all.

It was better in the shelter of the trees, where the wind was not so bad, but he was still cold. Very cold. He had gooseflesh for a time; then it passed. Other pains came, and the cold seemed less important.

The outworld wilderness was too dark and too light. Too dark to see where he was going. He stumbled over roots, skinned his knees and palms badly, ran into holes. But it was too light as well. Dawn coming too fast, too fast; the light spreading agonizingly through the trees. He was losing his beacon. He looked up at it every time he reached a clear space, every time he could see between the dense overhanging foliage; looked up and found it. A single bright red star, High Kavalaan's own star aflame in Worlorn's sky. Garse had pointed it out to him, and told him to follow it if he lost his way. It would lead him through the woods to his laser and his jacket. But dawn was coming, coming too quickly; the Braiths had delayed too long in cutting him loose. And every time he looked up again, and tried to go the right way—the forest was thick and confusing, the chokers formed impenetrable walls at points and forced him to take detours, all directions looked the same, it was easy to go astray—every time he searched for his beacon, it was fainter, more washed out. The eastern light had taken on a reddish tinge; Fat Satan was rising somewhere, and soon his homing star would be washed from a mock-twilight sky. He tried to run faster.

It was less than a kilometer to run, less than a kilometer. But a kilometer is a long way to go through a wilderness, naked, close to lost. He had been running ten minutes when he heard the Braith hounds baying wildly behind him.

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After that, he neither thought nor worried. He ran.

He ran in animal panic, breathing hard, bleeding, his whole body trembling and aching. The run became an endless thing, a thing outside of time, a fever dream of frantic pumping feet and snatches of vivid sensation and the noises behind him, the hounds, growing ever closer—or so it seemed. He ran and ran, and got nowhere and ran and ran, and did not move. He crashed through a thick wall of firebriars and the red-tipped thorns cut his flesh in a hundred places, and he did not cry, he ran, he ran. He reached an area of smooth gray slate and tried to scramble over it quickly and fell and smashed his chin with a *crack* against the stone and his mouth was full of blood and he spat it out. Blood on the rock, as well, no wonder he had fallen; his blood, all of it, from the cuts on his feet. He crawled over the smooth stone and reached the trees again and ran some more, wild, until he remembered that he was not looking for his beacon. And when he found it again, it was back behind him and to the side, very faint, a small shining dot in a scarlet sky, and he turned and went to it and across the stone once more, tripping over unseen roots, tearing the foliage away with wild hands, running, running. He ran into a low branch, sat down hard, got up holding his head, ran on. He tripped on a slimy bed of moss, black, smelling of rot, rose covered with the slime and the smell, ran on, ran on. He looked for his beacon star, and it was gone. He kept going. It had to be the right way, it had to. The hounds were behind him, baying. It was only a kilometer, it was less than a kilometer. He was freezing. He was on fire. His chest was full of knives. He kept running, staggered and tripped and fell, got up, kept running. The hounds were behind him, close, close, the hounds were behind him.

And then, suddenly—he did not know how long he had been running—he thought he caught the faint odor of smoke on the forest wind. He ran toward it, and came out from among the trees into a small clearing, and ran toward the other side of the barren open space, and stopped.

The hounds were there in front of him.

One of them, at least. It came slinking out of the trees, snarling, its little eyes deadly, its hairless snout drawn back to flash its ugly fangs. He tried to run around it and it was on him, knocking him over, slashing at him and rolling with him, then jumping up. Dirk struggled to his knees; the hound circled him, and snapped savagely whenever he tried to rise to his feet. It had bitten his left arm, and drawn blood. But it had not killed him, had not torn out his throat. Trained, Dirk thought. It circled him, its eyes never leaving him. Pyr had sent it out ahead, and was coming behind with his *teyn* and his other dogs. This one would keep him trapped here until they arrived.

He jumped to his feet suddenly, lunged toward the trees. The dog leaped, knocked him over again, wrestled him to the ground and almost tore loose his arm. This time he did not get up. The hound backed off again, stood waiting, poised, its mouth wet with blood and slaver. Dirk tried to push himself up with his good arm. He crawled a half-meter. The hound

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growled. The others were near. He heard the baying.

Then, from above, he heard something else. He looked up weakly, into the small slice of cloud-streaked sky, dim with the dawning rays of the Helleye and its attendants. The Braith hound, backing off from him a meter, was looking up too. And the *sound* came again. It was a wail and a war yell, a lingering ululating shriek, a death hoot that was almost musical in its intensity. Dirk wondered if he were dying, and hearing the sounds of Kryne Lamiya in his mind. But the hound heard it too. It was squatting on its hound legs, paralyzed, looking up.

A dark shape dropped from the sky.

Dirk saw it fall. It was huge, very black, pitch almost, and its underside was puckered with a thousand small red mouths, and they were all open, all singing, all sounding that terrible shuddering wail. It had no head that he could see; it was triangular, a wide dark sail, a wind-borne manta ray, a leather cloak someone had cast loose in the sky. A leather cloak with mouths, though, and a long thin tail.

He saw the tail whip around once, suddenly, and snap at the Braith hound's face. The dog blinked and stepped back. The other creature hovered for an instant, beating its vast wings with exquisite rippling slowness, then settled down over the hound and wrapped itself around it. Both animals were silent. The hound, the huge muscular rat-faced dog that stood as tall as a man—the hound was gone, covered completely.

Everything was silent. The hunter's wail had stilled the entire forest. He did not hear the other hounds.

Carefully he rose to his feet, and walked—limping—around the torpid killer-cloak. It scarcely seemed to stir. In the dawn half-light, it might have been a big misshapen log.

The far side of the clearing was a choker tangle, thick and yellow-brown and very dense. But the smoke came from beyond it. Wearily, Dirk dodged and squeezed and pushed the waxy limbs aside—breaking them when he had to—and forced his way through.

The wreck had ceased to burn, but a thin pall of smoke still hung above it. Dirk found his laser rifle nearby. He also found bones; two skeletons twisted around each other in a death's embrace, the bones dark and wet, still brown with blood and bits of clinging meat. One skeleton was human, or had been. All the arms and legs were broken, and most of the ribs shattered and gone, but Dirk recognized the triple-pronged metal claw that ended one twice-broken arm. Mingled with it, and just as dead, were the remains of whatever creature had dragged the carcass from the smoking aircar out into the open; some scavenger whose bones were black-veined and rubbery looking, curved and very big. The banshee had caught it feeding. No wonder it had been so close.

There was no trace of the leather-and-fur jacket that he and Garse had dropped here. Dirk dragged himself over to the cold hulk of the aircar and climbed into its shadowed maw. He cut himself on a sharp metal surface going in, but hardly noticed it; what was one more cut now? He settled down to wait, sheltered from the wind, and hopefully hidden from banshee and Braiths both. What had slowed

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the hunters down? Perhaps they were afraid of disturbing the banshee, that made a certain amount of sense. He lay down in the cold ashes, resting his head on his arm, and tried not to think, not to feel. His feet were bundles of raw agony. His arm was throbbing where the Braith hound had bit him. For a time he wished fervently that he could stop hurting, that his head would stop spinning so badly. Then he changed his mind. The pain, he thought, was probably the only thing that was keeping him conscious. And if he fell asleep now, somehow he did not think it likely that he would ever wake up again.

The sound of Braith hounds brought him back to attention. Ten meters away, the hunters came eagerly out of the foliage. Not as close as he had expected them. Of course, he thought, they had gone around the chokers instead of fighting through them. Pyr Braith was almost invisible, blue-black like the tree he stood against, but Dirk saw his motion, and the baton he carried in one hand, and the bright silvery shaft taller than he was that he held in the other. His *teyn* was a few steps ahead of him, holding two hounds on short chains; the dogs were barking wildly and pulling him forward almost at a trot. A third hound ran free at his side and, as soon as it was out of the underbrush, began bounding, snarling, toward the downed aircar.

Dirk, lying on his stomach amidst the ashes and the shattered instruments of the wreck, suddenly found it all immensely funny. Pyr hefted his silver shaft above his head and began to run; he was sure he had his prey at last. But he had no laser, and Dirk did. Giggling and giddy, Dirk raised the rifle and took careful aim.

As he fired, a memory came back to him, sudden and stabbing as the pulse of light that flashed from his laser. Janacek, just a short time ago, stern-faced, shrugging; *Your life may depend on how fast and straight you can run, and how accurately you can fire your rifle*, he had said. And Dirk had added: *And whether I can kill.* It had seemed terribly important, the killing; how much more difficult it would be than simple running.

He giggled again. The running had been very difficult. The killing was just something he did, and it was almost easy.

The bright burning knife of the laser hung in the air for a long second, impaling Pyr square in his broad gut as he ran toward the hulk. The Braith stumbled and fell to his knees. His mouth hung open absurdly for a second, before he collapsed on his face and was lost to Dirk's sight. The long silver blade he had carried remained stuck in the torn ground, swaying back and forth as the wind whipped at it.

Pyr's black-haired companion let go of the chain he was holding and seemed to freeze when his *teyn* went down. Dirk moved the laser slightly and fired once more, but nothing happened; the weapon was still in its fifteen-second recycle. That made the hunting a *sport*, he remembered; it gave the game a chance to get away if you missed. He found himself giggling again.

The hunter woke up and threw himself flat, rolling over the ground into a long gully ripped by the aircar's wing. Down in the trenches looking

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for his laser, Dirk thought, but he won't find it.

The hounds had surrounded the aircar, barking at him whenever he shifted his position or raised his head. None of them tried to come in for the kill. That was the hunter's business. Dirk took careful aim and shot the nearest one through the throat. It dropped like dead meat, and the other two backed off. Pulling himself to his knees, Dirk crawled out of his shelter. He tried to stand, steadying himself with one hand on the twisted wing. The world was spinning. Savage stabbing pains ran up his legs, and he found he could no longer feel his feet at all. But somehow he kept himself erect.

A shout rang out, something in Old Kavalar, Dirk did not know the word. The huge hounds charged, one right after the other, wet red mouths agape, snarling. And in the corner of his eye he saw the hunter emerging, two meters away, his knife out already. One of his long thin arms flicked it around in a sideways sort of motion, and it clattered off the wing Dirk was leaning against. Already the man had turned and was running and the nearest hound was there, in the air, and Dirk let himself fall and brought up the rifle and the long canines missed him but the beast's body smashed into him and knocked him spinning and it was on top of him and then somehow he found the trigger and there was a brief light and the smell of wet hair burning and an awful whine and the hound covered him and snapped again sort of feebly and there was blood and Dirk pushed the carcass off him and struggled to one knee and looked around and the Braith had reached Pyr's body and was lifting up the long silver thing and the other hound was making an awful clamor but he glanced at it and saw that it was caught its loose chain wrapped around a jagged edge of the wreck and snagged and so it yelped and yelped maniacally and lunged and the whole great burned hulk of the aircar seemed to shake a little and *move* but still it was caught and the black-haired hunter had the silvery thing and Dirk aimed his laser and fired and the light pencil cut out missing wide his hands were steady but a second is long enough so he swung it sharply left to right right to left and it sliced the man across the chest as he threw the silver thing that sailed a few meters and slid off the twisted wing and wound up sticking in the ground again moving back and forth back and forth back and forth in the wind while Dirk kept swinging the rifle left to right and right to left and left to right even after the hunter had fallen and the light had gone out. Finally it recycled and pulsed again for a second, burning nothing but a row of chokers, and Dirk, startled, released his hold on the trigger and dropped the weapon.

The hound, still caught, was snarling and lunging. Dirk looked at it, open-mouthed, almost uncomprehending. Then he giggled. He got down on his knees, found the laser, and began to crawl towards the Kavalars. It took an awfully long time. His feet hurt. His arm as well, where he had been bitten. The hound finally fell silent, but there was no quiet. Dirk could hear crying, a continuous low whimper.

He dragged himself through the

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dirt and the ashes, over the burnt-out trunk of a choker, to where the hunters had fallen. They were laying side by side. The gaunt one, the one whose name he had never learned who had tried to kill him with his knife and his dogs and his silver blade, that one was still, and his mouth was full of blood. Pyr, lying face down, was the source of the whimpers. Dirk knelt by him, shoved his hands beneath him, laboriously turned him over. He kept whimpering and did not seem to see Dirk at all, and his hands were clutching his stomach. A big gut and a small dark hole; it ought not to have hurt him so much.

His baton was lying nearby. Dirk took it up and wrapped his hands around the hardwood knob at one end and placed the small blade over Pyr's chest where his heart ought to be and leaned all his weight forward and down, thinking to give the other release. The hunter's heavy body thrashed horribly for an instant, and Dirk withdrew the blade and thrust it in again, and yet again, but Pyr would not keep still. The little blade was too short, Dirk decided after a time, so he used it differently, found an artery in Pyr's fleshy throat, held the baton very tightly right up by the knife end and pressed it in through the pale fatty skin. There was a terrible lot of blood then, a spurting stream that caught Dirk right in the face until he let go of the baton and pushed himself away. Pyr thrashed again and his neck continued to spurt where Dirk had cut him, and Dirk watched, but each spurt was a little feebler than the one before. He felt very sick. But at least Pyr was still, and the whimpering had stopped.

He sat alone, resting, in the wan red light. He was very hot and very cold, all at once, and he knew he should take some clothing from the corpses and cover himself, but he could not find the strength. His feet hurt horribly, and his arm had swollen to twice normal size. He did not sleep, but he was barely conscious. He watched Fat Satan rise higher and higher in the sky, approaching noon, with the bright yellow suns shining painfully around it. He heard the Braith hound howling several times, and once he listened to the eerie hunting wail of the banshee, and wondered if the creature would come back to eat him and the men he had killed. But the cry seemed a long way off, and perhaps it was only his fever, and perhaps it was only the wind.

Dirk knew that he must move again, or he would die here. He considered dying for a long time; it seemed like a very good idea, somehow, but he could not bring himself to do it. He remembered Gwen. He crawled over to where the body of Pyr's *teyn* was lying, ignoring his pain as best he could, and went through the man's pockets. He found the whisperjewel.

Ice in his fist, ice in his mind, memories of promises, lies, love. Jenny. My Guinevere, and he was Lancelot. He could not fail her. He could not. He crushed the cold teardrop hard in his hand and took the ice into his soul. He made himself stand up.

After that it was easier. Slowly he stripped the dead man of his clothing, and dressed, though everything was too long for him and the shirt and the chameleon cloth jacket had been slash-burned across the front and the

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man had fouled his pants. Dirk pulled off the corpse's boots as well, but they were too narrow for his bloodied, scab-crusted feet, and he was forced to use Pyr's. Pyr had huge feet.

Using his laser rifle and Pyr's baton as canes, he struggled toward the wild, and limped off through the tangled chokers.

CHAPTER THIRTEEN

The run from the hunters' camp to the wrecked aircar had covered less than a kilometer, and it had seemed to Dirk to take forever. The walk back took twice as long. It was late afternoon when he reached the small sandy area near the green lake. The aircars were still there, one twisted and lying deep in the water, the other three on the sand. The camp was deserted.

One of the cars—Lorimaar's huge domed vehicle—had a hound guarding it, bound to the door on a long black chain. The creature was lying down, but it rose at Dirk's approach and bared its teeth and growled at him. He detoured carefully around the perimeter of the dog's chain, and went to Janacek's car and climbed in and sealed the heavy door behind him. The cabin was dark and stuffy and cramped. After freezing for so long, he felt almost uncomfortably hot. He wanted to lie down, to sleep. But first he made himself search the supply locker; he found a medical kit, pulled it out and opened it. It was full of pills and bandages and sprays. He knew that he should go outside and wash methodically in the lake and clean all the filth out of his wounds before trying to bandage them up, but the massive armored door looked too heavy to move again just now. He pulled off his boots and stripped away his jacket and shirt, and sprayed his swollen feet and his left arm with a powder that was supposed to prevent infection, or fight it, or something—he was too tired to read the instructions all the way through. Then he looked at the pills. He took two fever pills and four painkillers and two antibiotics, swallowing them dry because he had no water on hand.

Afterward he lay down on the metal floor plates between the seats. Sleep came instantly.

He woke dry-mouthed and trembling and very nervous, some aftereffect of the pills. But he was thinking again, and his brow was cool when he touched it with the back of his hand, and his feet were less painful than before. The swelling in his arm had subsided a bit also, although it was still bigger than normal and quite stiff. He put on his burned, blood-crusted shirt again, and his jacket over it, gathered up the medkit, and went outside.

It was dusk; the western sky was all red and orange and two small yellow suns burned intensely against the clouds of sunset. The Braiths had not returned. Jaan Vikary, armed and clothed and experienced, clearly knew how to run a good deal better than Dirk.

He walked across the sand to the lake. He stripped and ducked his head and washed, then took out the medkit and did everything he should have done earlier, cleaning and bandaging his feet before slipping back into Pyr's boots, scrubbing out the worst of his wounds with disinfectant, dabbing at the inflamed bite-marks on his arm

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with a salve that claimed to minimize allergic reactions. He swallowed another handful of painkillers as well, this time washing them down with fresh water scooped from the lake.

Night was settling quickly by the time he was dressed again. The Braith hound was lying by Lorimaar's aircar, gnawing at a chunk of meat, but there was no sign of its masters. Dirk walked carefully around the beast to the third aircar, the one belonging to Pyr and his *teyn*. He had decided that he could help himself to their supplies with relative impunity; the other Braiths, returning to an empty camp, would never know that anything had been taken.

Inside he found a whole rack of weapons; four laser rifles emblazoned with the familiar white wolf's head, a brace of dueling swords, knives, a silver throwing-blade two-and-half meters long and an empty bracket beside it. And two pistols, thrown carelessly onto a seat. He also found a locker of fresh clothing, and changed eagerly, stuffing his torn garments out of sight. The clothes fit badly, but felt very good. He helped himself to a mesh-steel belt, one of the sidearms, and a knee-length chameleon cloth greatcoat.

When he lifted the coat from where it had been hanging, it revealed another storage locker. Dirk yanked it open. Inside were four familiar boots, and Gwen's sky-scoots. Pyr and his *teyn* had seemingly claimed them as booty.

Dirk smiled. He had never intended to take an aircar; the chances were too good that the hunters would see him at once, particularly if he overtook them by day. The scoots were the perfect answer. He wasted no time changing into the larger pair of boots, though he had to leave them unlaced to get his bandaged feet inside.

Food was stored in the same locker as the scoots; protein bars, sticks of dried meat, a small chunk of crusty cheese. Dirk ate the cheese and shoved the rest into a backpac along with the second sky-scoot. He strapped a compass around his right wrist, slung the pac between his shoulder blades, and climbed outside to spread the silver-metal tissue on the sand.

It was full dark. His beacon of the night before, High Kavalaan's star, burned bright and red and lonely above the forest. Dirk saw it and smiled. Tonight it would be no guidepost; he had guessed that Jaan Vikary would make straight for Kryne Lamiya, in the opposite direction. But the star still seemed a friend.

He took up a fresh-charged laser rifle and touched the wafer in his palm and lifted. Behind him, the Braith hound stood and set to howling.

He flew all night, keeping several meters above the treetops, consulting his compass from time to time and studying the stars. The wind was his constant companion; it came from behind him, strong to his back, and he gratefully accepted the extra speed it lent him. This was the wind of Kryne Lamiya, Dirk knew, born within the mountains and controlled by the Darkdawn weather machines, moving toward its destiny.

There were other noises as well: bounding movements in the woods below, the rushing of a small thin

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river, the thunder of a rapids. Several times Dirk heard the high squeaking chitters of tree-spooks, and saw small forms darting from limb to limb. He passed over a wide lake, and heard something splashing in the black waters, then several somethings. Far off, on the shore, a short honking bellow rattled the night. And behind him, an answering challenge; a long ululating wail. The banshee.

The eastern sky had just begun to lighten when he first heard drifting music; scattered snatches of despair, too familiar for his liking. The Dark-dawn city was near at hand.

He began to retrace his course, flying into the wind now, feeling the cold ghostly fingers of Lamiya-Bailis on his cheeks. In the light his task would be easier, he hoped.

The Helleye rose, and one by one the Trojan Suns. The woods beneath him turned from black to yellow-brown; chokers everywhere entwined like awkward lovers, and red light gleamed dimly from their waxy limbs. Dirk climbed and his horizons expanded. He saw rivers, the flash of sun on water. And overgrown lakes with no flash at all, dark, covered by a floating greenish film. He saw a fault line, a rocky slash running through the woods north to south, as straight as if it had been drawn with a ruler. And mud flats, black and brown and smelly, on either side of a wide slow waterway.

He saw nothing of Jaan Vikary or the hunters who pursued him.

By mid-morning Dirk's muscles ached with fatigue, his arm had begun to throb again, and his hope was fading. The wild went on forever. He turned back towards Kryne Lamiya again, convinced that he had come too far. He began to wander, covering the route in a drifting sine wave instead of a straight line, searching, always searching. He was very tired. Near noon he decided to fly in circles over the most likely area, spiraling in to try to cover it all.

And he heard the banshee screaming.

He saw it this time as well—it was flying low, near tree level, far beneath him. It seemed impossibly slow and still. The black triangular body scarcely seemed to move; the wings were held very rigidly, and the creature appeared to float on the Dark-dawn wind. Dirk, having nothing better to do, found himself following it.

It screamed again. The sound lingered.

And then he heard an answer.

He touched the wafer in the palm of his hand and began to descend rapidly, listening, suddenly alert again. The sound had been faint but unmistakable; a pack of Braith hounds, barking wildly in anger and fear. He lost sight of the banshee—no matter now—and chased the fast-fading sound. It had come from the north, he thought. He flew north.

Somewhere close, a hound let loose a howl.

Below him, cutting through the forest like a knife, was a swift-running blue-green river. He looped toward it, his eyes scanning back and forth restlessly. He heard the sound of rapids, traced the sound, found them. They looked fast and dangerous from above. Downstream the river widened and grew more gentle.

A dog barked, loudly. Others took up the sound.

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Downstream black dots in the water, wading in, where the flow looked reasonable. He flew toward it.

The dots grew, taking on shape and human form. A square little man in yellow-brown, fighting the current to wade across. Another man nearby on the shore, with six of the huge hounds.

The man in the water retreated. He had a rifle in his hand, Dirk saw. A pale face, a thick torso, heavy arms and legs; Saanel Larteyn, Lorimaar's fat *teyn*. And Lorimaar on the shore, holding the pack. Neither of them were looking up.

Saanel climbed out of the water. He was on the wrong side of the river still, the side with Lorimaar, the side away from Kryne Lamiya. He was trying to cross, though. But not here. Now the two hunters began to move away, heading further downstream, moving clumsily among the weeds and rocks and chokers that lined the riverbanks.

Dirk did not follow. He had the skyscoot and he knew where they were going; he could always find them later, if he had to. But where were the others? Roseph and his *teyn?* Garse Janacek? He turned and went upstream, feeling a bit more confident. If the hunting party had broken up, they would be easier for him to deal with. He flew low above the river.

About two kilometers northeast of the rapids—the channel was narrow and swift here—he found Janacek standing above the water with a puzzled expression on his face. He seemed to be alone.

Dirk killed his gravity grid, coming down beside Garse. "It doesn't look like easy swimming down there."

Janacek looked haggard. His face and clothes were dirty, and the red beard was damp with sweat. "I was attempting to decide if I should risk this sort of current or waste time by continuing upstream, in the vague hopes of finding a place I could safely ford." A weak smile broke across his face. "But you have solved that problem with Gwen's toy. Where . . . ?"

"Pyr," Dirk said. He started to tell Janacek about his flight to the wrecked aircar.

"You are alive," the Ironjade said quickly. "I can do without the tedious details, t'Larien. Did you see the Braiths?"

"Lorimaar and his *teyn* were going downstream," said Dirk.

"Had they crossed?"

"No, not yet."

"Good. Jaan is very close now, perhaps only a half hour ahead of us. They must not reach him first." His eyes swept the far bank of the river, and he sighed. "Do you have the other scoot, or must I take yours?"

Dirk set his rifle down on the rock and began to unsling his backpac. "I've got the other," he said. "Where is Roseph? What's going on?"

"Jaan has run magnificently," Janacek said. "No one could have expected him to cover so much ground so fast. The Braiths did not, in truth. And he has done more than simply run. He has set traps. He camped last night. He was far enough ahead of us. We found the ashes of his fire. Roseph stepped into a concealed pit and impaled his foot on a buried stake." Janacek smiled. "He has turned back, his *teyn* helping him. And you say Pyr and Arris are dead?"

Dirk nodded. He had pulled the

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boots and the second scoot from his pac.

Janacek accepted them without comment. "The hunters grow few. I think we have won, t'Larien. Jaan Vikary will be weary. He has run without sleep for a day and two nights. Yet we know he is not hurt, and he is armed, and he is of Ironjade. Lorimaar and that slug he keeps as *teyn* will find no easy prey." He knelt and began to unlace his boots, talking all the while. "Their mad conceit of a new holdfast here will be stillborn. Lorimaar was berserk to even dream of it. I think his mind snapped loose of its anchor when Jaan burned him back in Challenge." He pulled off one boot. "Do you know why Chell and Bretan were not among them, t'Larien? Because that pair had too much sanity for this high-Larteyn scheme! Roseph told me all about it as we hunted. The truth, he said, is this: Lorimaar announced the madness when the Braiths returned to Larteyn after Myrik had been killed. The six we encountered in the woods were there, plus old Raymaar. Bretan Braith Lantry and Chell fre-Braith were not—they had tried to pursue you and Jaantony, and later passed through some of the cities where they thought it likely you had taken refuge. So Lorimaar was essentially without opposition." Janacek was having difficulty fitting into Gwen's narrow boots. He scowled and yanked hard, forcing his foot in where it did not want to go. "When Chell returned, he was furious. He would not go along. He would not even listen. Bretan tried to calm him, Roseph claimed, but to no avail. Old Chell is a Braith, and Lorimaar's new holdfast was treason to him. He issued a challenge. Lorimaar was immune to challenge, in truth, since he was wounded, but he accepted nonetheless. Chell was very old. As challenged, Lorimaar made the first of the four choices, the choice of numbers." Janacek stood up, and stamped down hard on the rock to jam his foot into the boot more tightly. "Need I tell you that he chose to fight singled? Lorimaar, even wounded, disposed of the old man rather easily. It was death-square, and blades—Chell took many cuts, too many perhaps. Roseph believes he lies dying back in Larteyn. Bretan Braith remains with him, and more important still, remains Bretan Braith." Janacek spread out his sky-scoot.

"Did you find out anything about Ruark?" Dirk asked him.

The Kavalar shrugged. "It is all much as we suspected. Ruark contacted Lorimaar high-Braith by viewscreen—no one seems to know where the Kimdissi is presently—and offered to reveal where Jaan was hiding if Lorimaar would name him *korariel* and thus grant him protection. This Lorimaar did willingly. Jaan was fortunate in that he was within his aircar when they came. He simply took off and ran. They pursued him and finally Raymaar overtook him just beyond the mountains, but he was yet another old man and not nearly the flyer that Jaan Vikary is." There was a note of gleeful pride in Janacek's voice; like a parent boasting of a child. "The Braith went down in combat, but Jaan's car was damaged as well, so he was forced to land and run. He was already gone when the highbonds of Larteyn found where he had crashed."

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"Why did you split from Lorimaar?"

"Why do you think? Jaan is close now. I must reach him first, before they do. Saanel insisted the crossing would be easier downstream, and I took the chance to disagree. Lorimaar is too tired to be suspicious now. He thinks only of his kill. His burn is still on fire, t'Larien! I think he sees Jaan Vikary lying bloody before him, and forgets who it is he chases. So I went away from them, upstream, and for a time I feared I had made a mistake. The crossing *was* easier downstream, was it not?"

Dirk nodded again.

Janacek grinned. "Then your arrival is a luck, in truth."

"You are going to need more luck to find Jaan," Dirk warned. "The Braiths have probably crossed the river by now, and they have their hounds."

"It does not concern me overmuch," Janacek said. "Jaan runs straight now, and I know something Lorimaar does not—I know what he runs for. A cave, t'Larien! My *teyn* has always been intrigued by caves. When we were boys together in Ironjade, often he would take me exploring beneath the earth. He took me into more abandoned mines than I ever wished to see, and several times we went under the old cities, the demon-haunted ruins." He smiled. "Blasted holdfasts, too, hearths blackened in ancient highwars and still teeming with restless ghosts. Jaan Vikary knew all such places."

"All right," Dirk said. "So Jaan likes caves—"

"One system opens very near to Kryne Lamiya," Janacek said, returning to the issue at hand, "with a second entrance close to where we stand. I think that Jaan will complete his run underground, if he can. Thus we can intercept him." He scooped up his rifle.

Dirk lifted his own weapon. "You'll never find him in the forest," he said. "The chokers provide too much cover."

"*I* would find him," Janacek said, his voice a little ragged and more than a little wild. "Remember our bond, t'Larien. Fire and iron."

"Empty iron now," Dirk said, glancing pointedly at Janacek's right wrist.

The Ironjade grinned his hard distinctive grin. "No," he said. His hand went into his pocket, came out, opened. In his palm the glowstone rested. A single jewel, round and rough-faceted, about twice the size of Dirk's whisperjewel, black and near opaque in the full ruddy light of the morning.

Dirk stared, then touched it lightly with a finger, so that it moved slightly in Janacek's palm. "It feels—cold," he said.

Janacek frowned. "No," he said. "It burns, rather, as fire always does." The glowstone vanished back into his pocket. "There are stories, t'Larien, poems in Old Kavalar, tales they tell the children in the holdfast crêche. Of the things *teyn* has done for *teyn*. I am no storyteller or I would tell you myself. Perhaps then you could understand a bit of what it means, to stand *teyn* to a man and wear an iron bond."

"Perhaps I already do," Dirk said.

A long silence came between them, as they stood on the rock a bare half-

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meter apart, their eyes locked, Janacek smiling just a bit as he looked down on Dirk. Below them the river rushed by untiring, the sounds of its waters urging them to haste.

"You are not so terribly bad a man, t'Larien," Janacek said at last. "You are weak, I know, but no one has ever called you strong."

At first that sounded like an insult, but the Kavalar seemed to intend something else. Dirk stopped to puzzle it out and found a second meaning. "Give a thing a name?" he said, smiling.

Janacek nodded. "Listen to me, Dirk. I will not tell you twice. I remember when I was a boy in Ironjade, the first time I was warned of mockmen. A woman, an *eyn-kethi*—you would call her my mother, though such distinctions have no weight on my world—this woman told me the legend. Yet she told it differently—the mockmen she cautioned me against were not the demons I would learn of later from highbond lips. They were only men, she said, not alien pawns, no kin to were or soulsuck. Yet they were shape-changers, in a sense, because they had no true shapes. They were men who could not be trusted, men who had forgotten their codes, men without bonds. They were not real, they were all illusion of humanity without the substance. Do you understand? The *substance* of humanity—it is a name, a bond, a promise. It is inside, and yet we wear it on our arms. So she told me. This is why Kavalars take *teyns*, she said, and go abroad in pairs—because—because illusion can harden into fact if you bind it in iron."

"A fine speech, Garse," Dirk said when the other had finished. "But what effect does silver have on the soul of a mockman?"

Anger passed quickly across Janacek's face, like the shadow of a drifting stormcloud. Then he grinned. "I had forgotten your Kimdissi wit," he said. "Another thing I learned in youth was never to argue with a manipulator." He laughed and reached out and clasped Dirk's hand briefly and tightly in his own. "Enough," he said. "We will never meet as one, yet I can still be *friend* if you can still be *keth*."

Dirk shrugged, feeling strangely moved. "All right," he said.

But Garse was already off. He had let go of Dirk's arm and touched his finger to his palm, and he rose straight up a meter and then lurched out over the water, moving quickly, leaning forward, somehow fleet and graceful in the air. Halfway across the surging river he threw his head back and shouted something to Dirk, but the rush and tumble of the current swept his words away, and Dirk caught only the tone—a bloody, laughing exultation.

Wearily Dirk followed.

Janacek might disparage the skyscoots as "toys", but for all that he knew how to fly one. He was soon racing far ahead of Dirk, climbing up the steady wind until he flew some twenty meters above the forest. The distance between the two of them seemed to widen steadily; unlike Gwen, Janacek was not inclined to stop and wait for Dirk to catch up. Dirk contented himself with the role of pursuit.

The river vanished. The quiet lakes

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came and went. He heard the baying of Lorimaar's pack once, far behind him, the thin noises carried to him on the wind. He was not worried.

They angled south. Janacek was a small dot, black, flashing silver when a shaft of sun caught the raft on which he rode. Smaller and smaller. Dirk came after, a limp bird. Finally Janacek began to spiral down.

It was a wild region. Rockier than most, with a few rolling hills and outcroppings of black rock streaked with silver-gold. Chokers were everywhere, chokers and only chokers. Dirk heard the frantic noises of the tree-spooks and saw them under his feet, flying short flights on tiny wings.

The air around him shuddered to the sound of a banshee wail, and a cold tingle brushed Dirk's spine for no reason he could name. He looked up quickly, into the distance, and saw a pulse of light.

Brief, throbbing against his weary eyes, too intense; the sudden finger of brightness did not belong, not here, not in this gray dusk world. It did not belong, but it was there. Stabbing up once, from below, a savage thin fire soon lost in the sky.

Janacek was a small rag doll ahead of him, near the light. The slender thread of scarlet brushed him, touched the silver sled he stood on; slightly, quickly. The image lingered in Dirk's eyes. Absurdly Janacek began to tumble, flailing his arms. A black stick went spinning from his grasp and he disappeared down among the chokers, crashing through their interlocking branches.

Noises. Dirk heard noises. Music on this endless winter's wind. Wood snapping, followed by screams of pain and rage, animal and human, human and animal, both and neither. The towers of Kryne Lamiya shimmered above the horizon, smokelike and transparent, and sang to him a song of endings.

The screaming ceased suddenly; the white towers melted, and the gale that swept him forward blew away the shards. Dirk swung down and raised his laser.

There was a dark hole in the high foliage where Garse Janacek had fallen through; yellow limbs twisted down and broken, a gap big enough for a man's body. Dark; Dirk hovered above it and could not see Janacek or the forest floor, so thick were the shadows. But on the topmost limb, he saw a torn strip of cloth, flapping in the wind and changing colors. Above it, a little ghost stood solemn guard.

"Garse!" he shouted, not caring about the enemy below, the man with the laser. The tree-spooks answered in a chorus of chittering.

He heard crashing under the trees; the laser light flamed again, brightly. Not up this time, but horizontal, a shaft of impossible sun in the gloom below. Dirk moved again, circling out in a spiral until he saw a slanting gap among the chokers, wide enough for him to descend.

The forest floor was murky; the chokers, joining overheard, screened out nine-tenths of the Helleye's meager light. Huge trunks loomed all around him, gnarled yellow fingers twisting every whichway, stiff and arthritic. He bent and pulled his boots free of the silver grid, so the metal went limp. Then the shadows parted between the chokers and Jaan Vikary

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came out to stand above him. Dirk looked up.

Jaan's face was lined and empty. He was covered with blood and in his arms was a mangled red thing that he carried the way a mother might carry a sick child. Garse had one eye closed and one eye missing, torn from his face. Only half his face was there at all. His head lay gently against Jaan's chest.

"Jaan—"

Vikary flinched. "I shot him," he said. Trembling, he dropped the body.

CHAPTER FOURTEEN

There was no sound in the wilderness but Vikary's labored breathing and the faint skittering noises of the tree-spooks.

Dirk went to Janacek and rolled him over. Bits of moss clung to the body, soaking up the blood like sponges. The tree-spooks had torn out his throat, so Garse's head lolled obscenely when Dirk moved him. His heavy clothing had been no protection; they had bitten through everywhere, leaving the chameleon cloth in wet red tatters. Janacek's legs, still joined together by the useless silver-metal square of the sky-scoot, had been cracked in the fall; jagged bone fragments protruded from both calves, almost identical compound fractures. The face was the worst—gnawed. The right eye was gone. The socket welled with blood that dripped slowly down his cheek onto the ground.

There was nothing to be done. Dirk stared helplessly. He slipped a quiet hand into a pocket of Janacek's battered jacket and took the glowstone in his fist, then rose to face Vikary again.

"You said—"

"That I could never fire at him," Vikary finished. "I did not intend this. Never. I sought only to stop him, to knock out the sky-scoot. He fell into a tree-spook nest. A tree-spook nest."

Dirk's fist was clenched tightly around the glowstone. He said nothing.

Vikary shook; his voice took on animation, and there was a desperate edge in his tone. "He was hurting me. Arkin Ruark warned me, when I spoke to him by viewscreen in Larteyn. He said that Garse had joined the Braiths, had sworn to bring me down. I did not believe." He trembled. *"I did not believe!* Yet it was truth. He came after me, came hunting with them, just as Ruark said he would. Ruark—Ruark is not with me—we never—the Braiths came instead. I do not know if he—Ruark—perhaps they have slain him. I do not know." He seemed weary and confused. "I had to stop Garse, t'Larien. He knew of the cave. Gwen to think of too, Ruark said that Garse in his madness had promised to hand her over to Lorimaar, and I called him a liar until I glimpsed Garse behind me. Gwen is my *betheyn,* and you are *korariel.* My responsibility. Do you understand? I never meant this—I went to him, burned my way through—the grubs in the nest-heart were all over him, white things, the adults too—burned them, I burned them, brought him out." Vikary's body shook with dry sobs, but no tears came; he would not permit it. "Look. He was wearing empty iron. He came hunting me. I loved him and he came hunting me!"

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The glowstone was a hard nugget of indecision within Dirk's fist. He looked down once more at Garse Janacek, whose garments had faded to the colors of old blood and rotting moss, and then up at Jaan Vikary, so very close to breaking, who stood pale-faced with his massive shoulders twitching. Give a thing a name, Dirk thought; and now he must give a name to Jaantony high-Ironjade.

He slid his fist into the darkness of his pocket. "You had to do it," he lied. "He would have killed you, and Gwen later. He said so. I'm glad that Arkin got to you with a warning."

The words seemed to steady Vikary. He nodded wordlessly.

"I came looking for you," Dirk continued, "when you didn't return in time. Garse caught me and disarmed me and delivered me to Lorimaar and Pyr. He said I was a blood-gift."

"A blood-gift," Vikary repeated. "He was insane, t'Larien. It is truth. Garse Ironjade Janacek was not like that; he was no Braith, no giver of blood-gifts. You must believe that."

"Yes," Dirk said. "He was deranged. You're right. I could tell from the way he talked. Yes." He felt very close to tears and wondered if it showed. It was as if he had taken all of Jaan's fear and anguish into himself; the Ironjade seemed stronger and more resolute with every passing second, while grief came unbidden to Dirk's eyes.

Vikary looked down at the still body sprawled beneath the trees. "I would mourn for him, for the things that he was and the things that we had, but there is no time. The hunters come after us, with their hounds. We must press on." He knelt by Janacek's corpse for an instant, and held a limp bloody hand within his own. Then he kissed the ruin of the dead man's face, full on the lips, and with his free hand stroked the matted hair.

But when he rose again he had a black iron bracelet in his grasp, and Dirk saw that Janacek's arm was naked and felt a sudden pain. Vikary put the empty iron into his pocket. Dirk held back his tears and his tongue, saying nothing.

"We must go."

"Are we just going to leave him here?" Dirk asked.

"Leave him?" Vikary frowned. "Ah, I see. Burial is no Kavalar custom, t'Larien. We abandon our dead in the wild, traditionally, and if the beasts consume what we leave, we do not feel shame. Life should nourish life. Is it not more fitting that his strong flesh should give strength to some swift clean predator, rather than a mess of vile maggots and graveyard worms?"

So they left him where Vikary had dropped the body, in a little open space amidst the endless yellow-brown thicket, and they set off through the dim undergrowth toward Kryne Lamiya. Dirk carried his sky-scoot with him, and struggled to match Vikary's rapid pace. They had been walking for only a few moments when they came on a high steep ridge of twisted black rock. Jaan was already halfway to the top.

Dirk spread the silver tissue of his sky-scoot, and flew to the crest of the ridge.

He had just ascended past the topmost boughs of the chokers when he heard the banshee cry out briefly, not so far away. His eyes swept about,

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searching for the predator. The small clearing where they had left Janacek was easily visible from above, a patch of twilight close at hand. But Dirk could not see the body; the center of the clearing was a living mass of struggling yellow bodies. As he watched, other tiny shapes flitted from the nearby woods to join the feast in progress.

The banshee came out of nowhere and hung motionless above the flight, wailing its terrible long wail, but the tree-spooks continued their mad scramble, paying no mind to the noise, chittering and clawing at each other. The banshee fell. Its shadow covered them, its great wings rippled and folded, and it dropped; and then it was alone, spooks and corpse alike wrapped within its hungry grasp. Dirk felt strangely heartened.

But only for an instant. While the banshee lay inert a sharp squeak sounded suddenly, and Dirk saw a quick small blur dart down and land atop it. Another followed. And another. And a dozen, all at once. He blinked and it seemed as if the spooks had doubled. The banshee unfolded its vast triangular wings again, and they fluttered weakly, feebly, but it did not lift. The pests were all over it, biting at it, clawing at it, weighing it down and tearing it apart. Pinned to the earth, it could not even sound its anguished cry. It died silently, its meal still trapped beneath it.

By the time Dirk climbed off his sky-scoot at the top of the ridge, the clearing was a mass of heaving yellow once again, just as he had first glimpsed it, and there was no sign that the banshee had ever been there at all. The forest was very silent. He waited for Jaan Vikary to join him. Together they resumed their wordless trek.

The cave was cold and dark and infinitely still. Hours passed beneath the earth as Dirk followed the small wavering light of Jann Vikary's hand-torch. The light led him through twisting subterranean galleries, through echoing chambers where the blackness went on forever, through claustrophobic little passages where they squirmed on hands and knees. The light was his universe; Dirk lost all sense of time and space. They had nothing to say to each other, he and Jaan, so they said nothing; the only sounds were the scrape of their boots over the dusty rock, and the infrequent booming echoes. Vikary knew his cave well. He never hesitated or lost his way. They limped and crawled through the secret soul of Worlorn.

And emerged on a sloping hillside among chokers to a night full of fire and music.

Kryne Lamiya was burning. The bone towers screamed a shattered song of anguish.

Flames were loose everywhere in the pale necropolis, bright sentinels wandering up and down the streets. The city shimmered like some strange illusion in the waves of heat and light; it seemed an insubstantial orange wraith. As they watched, one of the slender looping bridges crumbled and collapsed; its blackened center fell apart first, down into the conflagration, and the rest of the stone span followed. The fire consumed it and rose higher, crackling and shrieking, unsatiated. A nearby building coughed dully and imploded, falling in a great cloud of smoke and flame.

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Above the roar of the fire Dirk could hear the faint music of Lamiya-Bailis. The Darkdawn symphony had been broken and transformed; towers were gone, notes missing, so the song was full of eerie silences, and the crackle of the flames gave a pounding counterpoint to the wails and whistles and moans. The Darkling winds that came endlessly from the mountains to make the Siren City sing—those same winds were fanning the great fires that ate at Kryne Lamiya, that darkened its deathmask with ashes and soot and ultimately bid it quiet.

Jaan Vikary unslung his laser rifle. His face was blank and strange, washed by the reflections of the great burning. "How—?"

"The wolf-car," Gwen said.

She was standing a few meters away, downslope from them. They looked at her without surprise. Behind her, at the base of the hill, Dirk glimpsed Ruark's little yellow aircar.

"Bretan Braith," Vikary said.

Gwen joined them near the entrance to the cave, and nodded. "Yes. The car has passed back and forth over the city a number of times, firing its lasers."

"Chell is dead," Vikary said.

"But you're alive," Gwen replied. "I was beginning to wonder."

"We are alive," he acknowledged. He let his rifle slide from limp fingers. "Gwen," he said, "I have killed my *teyn.*"

"Garse?" she said, startled. She frowned.

"He turned me over to the Braiths," Dirk said quickly. His eyes touched Gwen's. "And he was hunting Jaan, running at Lorimaar's side. It had to be done."

She glanced from Dirk back to Jaan. "This is the truth? Arkin told me something of the sort. I didn't believe him."

"It is the truth," Vikary said.

"Gwen," Dirk said, "we've misjudged Arkin badly." The back of his throat was thick with bile. "Don't you understand, Gwen? Arkin warned Jaan that Garse was going to betray him—without warning, Jaan would never have known—he might have trusted Janacek, might not have shot him down. He would have been taken, killed." His voice was hoarse and urgent. "Don't you understand? Arkin . . ."

The fire put cold reflections in her eyes as she watched Dirk. "I understand," she said, in a thick, wavering voice. She turned back to Vikary. "Oh, Jaan," she said. She held out her arms to him.

And he came to her, and rested his head in her shoulder, and wrapped his own arms tightly around her. And then he began to cry.

Dirk left them and walked down the hill to the aircar.

Arkin Ruark was tightly bound to one of the seats. He was dressed in heavy field clothes, and his head was slumped down so his chin rested against his chest. When Dirk entered he looked up, with an effort. The whole right side of his face was a swollen purplish bruise. "Dirk," he said weakly.

Dirk took off his cumbersome backpac and lowered it to the floor. He leaned up against the instrument panel. "Arkin," he said evenly.

"Help me," Ruark said.

"Janacek is dead," Dirk told him. "Jaan lasered him and he fell off the

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sky-scoot into a tree-spook nest."

"Garsey," Ruark said, with some difficulty. His lips were swollen and bloody, and his voice trembled. "He would have killed you all. Utter truth, utter. Warned Jaan, I did, warned him. Believe me, Dirk."

"Oh, I believe you," Dirk said, nodding.

"Tried to help, yes. Gwen, she's gone wild. I saw the Braiths take Jaan, I'd just come to join him, they were there first. Was afraid for her, I was. Came to help. She beat me, said I was a liar, tied me up and left me here. She's wild, Dirk, friend Dirk, Kavalar wild. Like Garse almost, not like sweet Gwen at all. I think she means to kill me. You too, maybe, I don't know. She is going to go back to Jaan, I know it. Help me, you have to help me. Stop her." He whimpered.

"She's not going to kill anyone," Dirk said. "Jaan is here now, and me. You're safe, Arkin, don't worry. We'll set things right. We've got a lot to thank you for, don't we? Jaan especially. Without your warning, there's no telling what might have happened."

"Yes," Ruark said. He smiled. "Yes, truth, utter truth."

Gwen appeared suddenly, framed in the door. "Dirk," she said, ignoring Ruark.

He turned to her. "Yes?"

"I made Jaan lie down for a while. He's very tired. Come outside where we can talk."

"Wait," Ruark said. "Untie me first, eh? Do that thing. My arms, Dirk, my arms . . ."

Dirk went outside. Jaan lay nearby, his head up against a tree, staring blindly off at the distant fire. They walked away from him, into the darkness of the chokers. Finally Gwen paused and swung around to face him. "Jaan must never know," she said. She brushed a loose strand of hair back from her forehead with her right hand.

Dirk stared. "Your arm," he said.

Around her right forearm Gwen wore iron, black and empty. Her arm froze at Dirk's words. "Yes," she said. "The glowstones will come later."

"I see," Dirk said. "*Teyn* and *betheyn* both."

Gwen nodded. She reached out and took Dirk's hands in her own. Her skin was cool and dry. "Be happy for me, Dirk," she said in a small sad voice. "Please."

He squeezed her hands, trying to be reassuring. "I am," he said, without much conviction. Between them lay a long silence and a great bitterness.

"You look like hell," Gwen said at last, forcing a little grin. "Scratched all over like that. The way you hold your arm. The way you walk. Are you all right?"

He shrugged. "The Braiths aren't gentle playmates," he said. "I'll survive." He let go of her hands then, and reached into his pocket. "Gwen, I have something for you."

Within his fist: two gems. The glowstone round and rough-faceted, lit faintly from within, smouldering in the hollow of his hand. And the whisperjewel, smaller, darker; dead and cold.

Gwen took them wordlessly. She rolled them in her hand for a moment, frowning. Then she pocketed the glowstone and gave the whisperjewel back to Dirk.

He accepted it. "The last I have of

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Jenny," he said, as his hand closed around the echoing ice-drop and it vanished once again into his clothing.

"I know," she said. "Thank you for offering. But if truth be known, it doesn't talk to me any more. I guess I've changed too much. No resonance, you know? I haven't heard a whisper in years."

"Yeah," he said. "I suspected something like that. But I had to offer it to you; it and the promise. The promise is still yours, Gwen, if you ever need it. Call it my fire-and-iron. You don't want to turn me into a mockman, do you?"

"No," she replied. "The other one . . ."

"Garse saved it, when he tossed the rest away. I thought maybe you'd want to have it reset, with the new ones. Jaan will never know the difference."

Gwen sighed. "All right," she said. Then: "I find that I'm sorry about Garse, after all. Isn't that curious? All the years we passed together, there was scarcely a day when we weren't at each other's throats, with poor Jaan trapped in between, loving us both. There were times when I was almost certain that the only thing that stood between me and happiness was Garse Ironjade Janacek. Only now he's gone, and I find that very hard to believe. I keep expecting him to turn up in his aircar, armed to the teeth and grinning, ready to snap at me and put me in my place. I think that maybe when I really come to know it's true, then maybe I'll cry. Don't you think that's curious?"

"No," said Dirk. "No."

"I could almost cry for Arkin, too," she said. "Do you know what he said? When he came to me in Kryne Lamiya? After I called him a liar, and hit him, and broke him down—do you know what he said?"

Dirk shook his head, waiting.

"He said he loved me," Gwen said, smiling grimly, "He said that he had always loved me, from the moment we met on Avalon. I can't swear that he was telling the truth. Garse always said the manipulators were clever, and Arkin didn't need to be a genius to see how his revelation affected me. I almost set him free, when he told me that. He seemed so small and pitiful, and he was sobbing. Instead—you saw his face?" She hesitated.

"I saw," Dirk said. "Ugly."

"Instead I did that to him," Gwen said. "But I think I believe him now. In a sick sort of way, he did love me. And he saw what I was doing to myself, and he knew that I would never leave Jaan left to my own devices, so he decided to use you—use all the things I told him, trusted him with—get me away from Jaan that way. I suppose he figured that you and I would lose each other again the way we did on Avalon, and then I'd turn to him. Or maybe he knew better, I don't know. He claimed that he was only thinking of me, of my happiness, that he couldn't stand seeing me in silver-and-jade. That he had no thought for himself. He says he's my friend." She sighed hopelessly. "My friend," she repeated.

"Don't feel too sorry for him, Gwen," Dirk warned. "He would have sent me to my death, and Jaan too, without a moment's hesitation. Garse Janacek is dead, and several of the Braiths, and innocent Emereli in Challenge—and you can lay it all on

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friend Arkin. Can't you?"

"Now you're the one that sounds like Garse," she said. "What did you tell me? That I had jade eyes? Look at your own, Dirk! But I suppose you're right . . ."

"What do we do with him now?"

"Free him," she said. "For the present. Jaan must never suspect the truth of what he did. It would destroy him, Dirk. So Arkin Ruark has to be our friend again. You see?"

"Yes," he said. The roar of the fire had diminished to a gentle crackling, Dirk noticed; it was almost quiet. Glancing back in the direction of the aircar, he saw that the inferno was guttering out. A few scattered fires still flickered weakly among the rubble, casting a shifting light over the ruined, smoking city. Most of the slim towers had fallen, and those that remained had grown entirely silent. The wind was only a wind.

"Dawn will be here soon," Gwen said. "We should be going."

"Going?"

"Back to Larteyn, if Bretan hasn't destroyed that as well."

"He has a violent way of mourning," Dirk agreed. "but is Larteyn safe?"

"The time for run-and-hide is over," Gwen said to him. "I'm not unconscious now, and I'm not a helpless *betheyn* who needs to be protected." She raised her right arm; distant fires illuminated the dull iron. "I'm *teyn* to Jaan Vikary, blooded even, and I've got my weapon. And you—you've changed too, Dirk. You're not *korariel* anymore, you know. You're *kethi*.

"We're together, for the moment. We're young and we're strong, and we know who are our enemies are and how to find them. And none of us can ever be Ironjades again—I'm a woman and Jaan's an outbonder and you're a mockman. Garse was the last Ironjade. Garse is dead. The rights and wrongs of High Kavalaan and the Ironjade Gathering died with him, I think, for this world at the least. There are no codes on Worlorn, remember? No Braiths and no Ironjades, only animals trying to kill each other."

"What are you saying?" Dirk said, though he thought he knew.

"I'm saying that I'm tired of being hunted and hounded and threatened," Gwen said. Her shadowed face was black iron; her eyes burned hot and feral. "I'm saying that it's time *we* became the hunters!"

Dirk regarded her in silence for a long time. She was very beautiful, he thought; beautiful in the way that Garse Janacek had been beautiful. She was a little like the banshee, he decided, and he grieved a private grief for his Jenny, his Guinevere who never was. "You're right." he said heavily.

She stepped closer to him, wrapped him within the circle of her arms before he could react, and hugged him with all of her strength. His own hands came up slowly; he hugged her back, and they stood together for a good ten minutes, crushed against one another, her smooth cool cheek against his stubble. When she finally broke from him, she looked up, expecting him to kiss her, so he did. He closed his eyes; her lips felt dry and hard.

The Firefort was cold at dawn. The

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wind swirled around it in hammering gusts; the sky above was gray and cloudy.

On the roof of their building they found a corpse.

Jaan Vikary climbed out carefully, his laser rifle in hand, while Gwen and Dirk covered him from the relative safety of the aircar. Ruark sat silently in the back seat, terrified. They had freed him before leaving the vicinity of Kryne Lamiya, and all the way back he had been alternately sullen and ebullient, not knowing what to think.

Vikary inspected the body, which lay sprawled in front of the tubes, then returned to the car. "Roseph high-Braith Kelcek," he said curtly.

"High-Larteyn," Dirk reminded him.

"In truth," he acknowledged, frowning. "High-Larteyn. He has been dead several hours, I would estimate. Approximately half of his chest has been blown away by a projectile weapon. His own sidearm is holstered."

"A projectile weapon?" Dirk said.

Vikary nodded. "Bretan Braith Lantry has been known to use such a weapon in duel. It is a great sloppy savage thing, and it makes for short deadly duels."

Gwen was staring out to where Roseph lay like a pile of rags. His clothing had the dirty dust-color of the roof, and it flapped erratically in the wind. "This was no duel."

"No," Vikary agreed.

"But *why*?" Dirk asked. "Roseph was no threat to Bretan Braith, was he? Besides, the code duello—Bretan is still a Braith, isn't he? So isn't he still bound?"

"Bretan is indeed yet a Braith, and *that* is your why for you, Dirk t'Larien," Vikary said. "This is no duel. This is highwar, Braith against Larteyn. There are very few rules in highwar; any adult male of the enemy holdfast is fair prey, until a peace comes."

"A crusade," Gwen said, chuckling. "That doesn't sound much like Bretan, Jaan."

"It sounds a great deal like old Chell, however," Vikary replied. "I suspect that his *teyn* swore him to this course as he lay dying. If this is truth, Bretan kills under a pledge, not simply in grief. He will have very little mercy."

In the back seat, Arkin Ruark leaned forward eagerly. "But this is all to the best!" he exclaimed. "Yes, listen to me, this is fine. Gwen, Dirk, Jaan my friend, listen—Bretan will kill them all for us, will he not? Kill them one and all, yes. He is enemy of our enemies, best hope we have, utter truth."

"Your Kimdissi proverb is misleading in this case," Vikary said. "The highwar between Bretan Braith and the Larteyns makes him no friend of ours, except by chance. Blood and high grievance are not forgotten so easily, Arkin."

Vikary threw their aircar into sudden motion. They rose and flitted away from the roof, over the dawn-dim streets of Larteyn.

"Where . . . ?" Dirk asked.

"Roseph is dead," Vikary said. "Yet he was not the only hunter. We shall take a census, friends, we shall take a census . . ."

The building that Roseph high-

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Braith Kelcek had shared with his *teyn* was achingly familiar to Dirk; located not too far from the Ironjade residence and very close to the undertubes, it was a large square structure with a domed metallic roof and a portico supported by black iron columns. They landed nearby and approached it stealthily.

Two Braith hounds had been chained to the pillars in front of the house. Both of them were dead. Vikary looked them over. "Their throats were burned out with a hunting laser fired from some distance," he reported. "A safe, silent kill."

He remained outside, laser rifle in hand, wary, standing guard. Ruark stayed close at his side. Gwen and Dirk were sent in to search the building.

Roseph's *teyn* had been eating. They found him in the dining chamber. His meal—a thick stew of meat and vegetables in a bloody broth, with hunks of black bread on the side—was cold and half consumed. A pewter mug full of brown beer stood next to it on the long wooden table. The Kavalar's body was almost a meter away, still in its chair, but the chair lay flat on the floor and there was a dark stain on the wall behind it. The man no longer had a face.

Gwen stood over him, frowning, her rifle slung casually beneath one arm and pointing at the floor. She picked up his beer and took a sip before passing it to Dirk. It was tepid and stale, its head long gone.

"Lorimaar and Saanel?" Gwen asked when they stood outside again, under the iron pillars.

"I doubt that they have returned from the forest yet," Vikary said. "Perhaps Bretan Braith is somewhere in Larteyn, waiting for them. No doubt he saw Roseph and Chaalyn fly in yesterday. Perhaps he is lurking somewhere close at hand, hoping to pick off his enemies one-by-one as they returned to the city. Yet I think not."

"Why?" That was Dirk.

"Remember, t'Larien, *we* flew in at dawn, and in an unarmored aircar. He did not attack. Either he was sleeping, or he is no longer about . . ."

"Where do you think he is?"

"In the wild, hunting our hunters," Vikary said. "Only two of the Larteyns remain alive to face him, but Bretan Braith has no way of knowing that. At his last knowledge, Pyr and Arris and even ancient Raymaar One-Hand were all living, and were forces to be reckoned with. I would guess that he has flown off to take them by surprise, perhaps in the fear that otherwise they might return to the city in a group, discover their *kethi* slain, and thus be warned of his intentions."

"We should run then, yes, before he gets back," Arkin Ruark said. "Go somewhere safe, away from this Kavalar madness. Twelfth Dream. Or Musquel, or Challenge, anywhere. There will be a ship soon, then we will be safe, what do you say?"

"I say no," Dirk replied. "Bretan would find us. Remember the almost supernatural way he found Gwen and me in Challenge?" He looked pointedly at Ruark. To his credit, the Kimdissi remained admirably blank faced.

"We will stay in Larteyn," Vikary said decisively. "Bretan Braith Lantry

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is one man. We are four, and three of us are armed. If we stay together, we are safe. We will post guards. We will be ready."

Gwen nodded and slipped her arm through Jaan's. "I agree," she said. "Bretan may not even survive Lorimaar."

"No," the Kavalar said to her. "No, Gwen. I think you are wrong. Bretan Braith will outlive Lorimaar. That much I am sure of."

At Vikary's insistence, they searched the great subterranean garage before leaving the vicinity of Roseph's residence. His guess paid off. With their own aircar stolen in Challenge and subsequently destroyed, Roseph and his *teyn* had borrowed Pyr's flyer to return from the hunt in the wilderness; it was parked below. Jaan appropriated it. While it was not Janacek's massive olive-green war relic by any means, it was still a good deal more formidable than Ruark's little car.

Afterward they found quarters. Along the city walls of Larteyn, overlooking the steep cliff that frowned down on the distant Common, were a series of guard towers with slit-windowed sentry posts above the living quarters below, within the walls themselves. The towers, each with a great stone gargoyle roosting on top, were strictly ornamental, a flourish to make the Festival city truly Kavalar. But they were easily defensible, and gave an excellent overview of the city. Gwen selected one at random and they moved in, raiding their former apartment for personal effects and food and the records of the almost-forgotten (by Dirk, anyway) ecological researches that Gwen and Ruark had conducted in the wilds of Worlorn.

Once secure, they settled in to wait.

It was, Dirk decided later, the worst thing they could have done. Under the pressure of their inactivity, all the cracks began to show.

They set up a system of overlapping shifts, so two people were up in the guard tower at all times, armed with lasers and Gwen's field binoculars. Larteyn was gray and empty and desolate; there was little for the watchers to do except study the slow ebb and flow of light in the glowstone streets, and talk. Mostly they talked.

Arkin Ruark did his shifts along with the rest of them, and accepted the laser rifle that Vikary forced on him, although with some reluctance. Over and over he insisted that he was unsuited to violence, that he could never fire the laser no matter what. But he consented to hold it, because Jaan Vikary asked him to. His relationships with all of them had changed radically. He stayed close to Jaan as often as he could, recognizing that the Kavalar was his real protector now. He was cordial to Gwen—she had asked him to forgive her for Kryne Lamiya, claiming that fear and pain had temporarily pushed her over into paranoia. But she was no longer "sweet Gwen" for Ruark; the bitterness between them came more to the surface every day. Toward Dirk, the Kimdissi maintained an uneasy, suspicious attitude, alternately smothering him in good fellowship and drawing back into formality when it became clear that Dirk was not warming.

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Ruark's comments on the first watch they stood together indicated to Dirk that the chubby ecologist was waiting desperately for the Fringe shuttle *Teric neDahlir,* due to land the following week. He seemed to want nothing more than to remain safely in hiding and get offworld as soon as possible.

Gwen Delvano waited for something entirely different, Dirk thought. While Ruark scanned the horizons with apprehension, Gwen was tense with anticipation. He remembered the words she had spoken when they talked together in the shadows of fire-wracked Kryne Lamiya. "It's time *we* became the hunters," she had said. She still meant it. When she and Dirk shared a watch, Gwen did all the work. She sat by the tall narrow window with an almost infinite patience, her binoculars hanging down between her breasts, her arms resting on the window sill, jade-and-silver next to empty iron. Every once in a while she would lift her binoculars and study some distant building where she had glimpsed motion. "I hope that Jaan is wrong," she said while she sat waiting. "I would rather see Lorimaar and his *teyn* come back than Bretan." Dirk mumbled some sort of agreement, on the grounds that Lorimaar—much older and wounded too—would be far less dangerous than the one-eyed duelist who hunted him. But when he said it, Gwen only gazed at him curiously. "No," she said, "no, that isn't the reason at all."

As for Jaantony Riv Wolf high-Ironjade Vikary, the waiting seemed to wound him worst of all. As long as he had been kept in action, as long as things had been required of him, he had remained the old Jaan Vikary; strong, decisive, a leader. Idle he was a different man. He had no role to play then; instead he had unlimited time to brood. It was no good. Though Garse Janacek was mentioned seldom in those last days, it was clear that Jaan was haunted by the specter of his red-bearded *teyn.* Vikary was too often grim, and he began to fall into sullen silences that would sometimes last for hours. He had earlier insisted that all of them should remain inside at all times; now Jaan himself began to take long walks at dawn and dusk, when he was not on watch. During his hours in the guard tower, most of his conversations were filled with rambling recollections of his boyhood in the holdfasts of the Ironjade Gathering, and tales taken from history, of martyred heroes like Vikor high-Redsteel and Aryn high-Glowstone. He never spoke of the future, and only rarely of their present circumstances. Watching him, Dirk felt he could almost see the man's inner turmoil. In a matter of a few days, Vikary had lost everything; his *teyn,* his homeworld and his people, even the code that he had lived by. He was fighting it—already he had taken Gwen as *teyn,* accepting her with a fullness and a total dependence that he had never shown toward either her or Garse individually. And it seemed to Dirk that Jaan was trying to keep his code as well, clinging tightly to whatever pieces of Kavalar honor had been left to him. It was *Gwen,* not Jaan, who spoke of hunting the hunters, of animals killing each other now that all codes were gone. She worded things as if she spoke for her *teyn* as well as herself, but Dirk did not think that was so. Vikary, when he spoke of their

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impending struggles, always seemed to imply that he would be dueling Bretan Braith.

Dirk was afraid. Jaan was their strength, and he was lost in his martial delusion, his half-spoken assumption that Bretan Braith would return and grant him the courtesies of code, despite everything. Despite all of Vikary's vaunted prowess in duel, it seemed to Dirk increasingly unlikely that the Ironjade could triumph over Bretan in single combat. Dirk's own sleep was plagued by recurrent nightmares of the half-faced Braith; Bretan with his strange voice and his glowing eye and his grotesque twitch, Bretan slim and smooth-cheeked and innocent, Bretan the destroyer of cities. Dirk woke from those dreams sweaty and exhausted, twisted in his bed clothes, remembering Gwen's screams (high shrill laments like the towers of Kryne Lamiya) and the way Bretan looked at him. To banish these visions he had only Jaan, and Jaan had a weary fatalism about him now, though he might still go through the motions. It was Janacek's death, Dirk told himself—and more, the circumstances of that death. Had Garse died more normally, Vikary would be an avenger more angry and impassioned and invincible than Myrik and Bretan combined. As it was, however, Jaan was convinced that his *teyn* had betrayed him, had hunted him like a beast or a mockman, and the conviction was destroying him. More than once, sitting with the Ironjade in the small watchroom, Dirk felt the urge to tell him the truth, to rush up to him and shout *No, No! Garse was innocent, Garse loved you, Garse would have died for you!* Yet he said nothing. If Vikary was dying this way, consumed by his melancholy and his sense of betrayal and his ultimate loss of faith, then how much quicker would the truth kill him—

So the days passed and the cracks grew and Dirk watched his three companions with growing apprehension. While Ruark waited for escape, and Gwen for revenge, and Jaan Vikary for death.

CHAPTER FIFTEEN

On the first day of vigil it rained most of the afternoon. The clouds had been piling up in the east all morning, growing thicker and more threatening, obscuring Fat Satan and his children so the day was even gloomier than usual. Near noon the storm broke. It was a howler. The winds whistled by outside so loudly that the guard tower seemed to shake, and rivers of brown water ran wildly through the streets and down glowstone gutters. When the suns broke through at last—they were already close to setting—Larteyn glistened, its walls and buildings shining wetly and looking cleaner than Dirk had even seen them. The Firefort seemed almost hopeful. But that was the first day of vigil.

On the second day things were back to normal. The Helleye rode a slow red path across the sky, and Larteyn glowered dim and black below, and the wind brought back the dust of the Common that yesterday's rains had washed away. At dusk, Dirk spied an aircar. It materialized high above the mountains, a black dot, and swept out over the Common before turning back to descend on them. Dirk watched it carefully through the binoculars, his

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elbows resting on the stone sill of the narrow window. It was no car he knew; a dead black thing, a small stylized bat with wide wings and enormous headlamp-eyes. Vikary was sharing that watch with him. Dirk called him over to the window, and Jaan looked with disinterest. "Yes, I know that craft," Jaan said. "It is no matter to us, t'Larien, only the hunters from the Shanagate Holding. Gwen reported seeing them leave this morning." The aircar had vanished by then, lost among the buildings of Larteyn, and Vikary went back to his seat, leaving Dirk to reflect. In the days that followed, he saw the Shanagates several times, and they never ceased to seem unreal to him. How odd it was to think of them coming and going, untouched by all that had happened, living their lives as if Larteyn was still the peaceful dying city it seemed, as if no one had perished. For them, nothing had changed; Kryne Lamiya still sang its wailing dirge, and Challenge was still fervent with light and life and promise. He envied them.

On the third day Dirk woke from a particularly virulent nightmare in which he was fighting off Bretan alone, and was unable to get back to sleep afterward. Gwen, offwatch, was pacing back and forth in the kitchen. Dirk poured himself a mug of Vikary's beer and listened to her for a while. "They should be here," she kept complaining. "I can't believe that they're still searching for Jaan. Surely they must realize by now what's happened! Why aren't they here?" Dirk only shrugged at her, and expressed hope that no one ever showed up; *Teric neDahlir* was due soon. When he said that, she spun on him angrily. "I don't care!" she snapped—and then, ashamed, she flushed red and came to the table and sat down. Beneath a wide green headband, her eyes were haggard. She held his hand, and told him haltingly that Vikary had not touched her since Janacek's death. Dirk told her that it would be better for them once the starship came, once they were safely off Worlorn, and Gwen smiled and agreed with him, and after a time she wept. When she finally left him, Dirk went back and found his whisperjewel and held it in his fist, remembering.

On the fourth day, while Vikary was out on one of his dangerous dawn walks, Gwen and Arkin Ruark quarreled during a watch, and she hit him with the butt of her laser rifle, hard across his bruised face where the swelling had only recently succumbed to ice-packs and ointments. Ruark came down the ladder from the tower muttering that she was mad again, trying to kill him. Dirk, woken from a sound sleep, was standing in the common room, and the Kimdissi stopped dead when he saw him. Neither of them said anything but after that Ruark lost weight rapidly, and Dirk was certain that Arkin *knew* what he had only suspected previously.

On the morning of the sixth day, Ruark and Dirk were sharing a wordless watch when the short man, in a fit of pique, suddenly threw his laser across the room. "Filthy thing!" he exclaimed. "Braiths, Ironjades, I don't care, Kavalar animals is what they are, yes. And you, fine man from Avalon, eh? Ha! You are no better, no better at all, look at you. I should have let you duel, kill or be killed, like you

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wanted. That would have made you happy, yes? No doubt, no doubt. Loved sweet Gwen and made you a friend, and where is my gratitude, where, where?" His fat cheeks were growing hollow and sunken; his pale eyes shifted restlessly. Dirk ignored him, and Ruark soon fell silent. But later on that same morning, after he had picked up his laser and sat for a few hours staring at the wall, the Kimdissi turned to Dirk once again. "I was her lover too, you know," he said. "She didn't tell you that, I know, I know, but it is the truth, the utter truth. On Avalon, long before she ever met Jaantony and took her damn silver-and-jade, the night you sent her that whisperjewel. She was so drunk, you know. We talked and we talked, and she drank, and later on she took me to bed, and the next day she didn't even remember, you know that, she didn't even remember. But that doesn't matter, it is the truth, I was her lover too." He trembled. "I never told her, t'Larien, or tried to make it come again. I am not such a fool like you are, and I know what I am, and it was only a thing of that moment. Yet it existed, that moment, and I taught her a lot and I was her friend, and I am *very* good at my work, yes I am." He stopped and caught his breath and then silently left the tower, although there was still an hour to go before Gwen was scheduled to relieve him. When she finally came up, the first thing she did was ask Dirk what he had said to Arkin. "Nothing," he replied, truthfully. Then he asked her why, and she told him that Ruark had woken her, crying, and telling her over and over that no matter what happened she should make sure their work was published, and that his name belonged on it, no matter what he had done, his name belonged on it too. Dirk nodded, and gave up his binoculars and his post by the window to Gwen, and very soon they were talking of other things.

On the seventh day the late-night watch fell to Dirk and Jaan Vikary. The Kavalar city wore its dull night-time glow, the glowstone boulevards like sheets of black crystal beneath which red fires burn dimly, dimly. Near to midnight a light appeared over the mountains. Dirk studied it as it flew towards the city. "I don't know," he said, holding the binoculars. "It's dark, hard to make out. I think I can see the vague outline of a dome, though." He lowered his glasses. "Lorimaar?"

Vikary stood over him. The aircar grew closer. It slid silently above the city, and its silhouette was distinct. "It is his car," Jaan said.

They watched it veer out over the Common and circle back, heading for the cliff face and the entrance to the underground garage. Vikary looked thoughtful. "I would not have believed it," he said. They went down to rouse the others.

The man emerged from the darkness of the undertubes to find himself facing two lasers. Gwen had her pistol trained on him, almost casually. Dirk, armed with one of the hunting rifles, had aimed at the tube doors and stood with the sight pressed against his cheek, ready to fire. Only Jaan Vikary did not have a weapon out; he held his rifle loosely in his hands, and his sidearm was holstered.

The tube doors slid shut behind

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him, and the man stood very still, understandably frightened. It was not Lorimaar. It was not anyone Dirk knew. He lowered his rifle.

The man's eyes touched each of them in turn, and finally settled on Vikary. "High-Ironjade," he said in a low voice. "Why do you accost me?" He was a medium-sized man, horse-faced and bearded, with long blond hair and a scrawny build. Dressed in chameleon cloth; it was somber red-gray now, flushed and feverish like the glowstone blocks of the pavement.

Vikary reached over and gently pushed Gwen's pistol to the side. The act seemed to wake her. She frowned and holstered her weapon. "We were expecting Lorimaar high-Braith," she said.

"The truth," Vikary affirmed. "No insult was intended, Shanagate. Honor to your holdfast, honor to your *teyn*."

The horse-faced man nodded and looked relieved. "And to yours, high-Ironjade," he said. "No insult was taken." He plucked at his nose nervously.

"You fly Braith property, do you not?"

He nodded. "In truth, and ours by right of salvage. My *teyn* and I stumbled on it in the wild, while we pursued an ironhorn in flight."

"Abandoned?"

"No, we found their bodies. Some enemy had been waiting at their camp, inside the aircar we do believe, and when they returned from hunting . . ." The Kavalar gestured. "They will take no more heads, mockman or otherwise."

Vikary nodded.

"These are very unusual events," the man was saying. He regarded the three of them shrewdly, with unconcealed interest. His gaze lingered for an uncomfortably long time on Dirk, and then on Gwen's black iron bracelet, but he commented on neither. "Few Braiths seem to be about of late, fewer than normal, and now we find two of them slain."

"If you search hard enough you'll find some others," Gwen said.

"They're starting a new holdfast," Dirk added, "in hell."

When the man had gone on his way they began the slow walk back to the watchtower. No one spoke. Long shadows grew from their feet and followed them down the somber crimson streets. Gwen walked as if she were exhausted. Vikary was almost jumpy; he carried his rifle warily, ready to snap it up and fire should Bretan Braith suddenly take form in their path, and his eyes probed every alley and dark place along their route.

Back in the brightness of the common room, Gwen and Dirk slumped quickly to the floor, while Jaan stood for a moment just inside the door, his face thoughtful. Then he set down his weapons and broke out a bottle of wine; the same pungent vintage that he had shared with Garse and Dirk the night before the duel that never was. He poured three glasses and handed them around. "Drink," he said, raising his own glass in a toast. "Things draw to a close. Now there is only Bretan Braith left. Soon he shall be with his Chell, or I shall be with Garse, and in either case we will have a peace." He drained his glass very quickly. The others sipped.

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"Ruark should drink with us," Vikary announced abruptly, as he refilled his glass. The Kimdissi had not accompanied them to their midnight rendezvous. His reluctance had not seemed to be from fear, however; at least Dirk did not think so at the time. Jaan had gotten him up, and Ruark had dressed with the rest of them, slipping into his finest silkeen suit and a little scarlet beret, but when Vikary had handed him a rifle at the door he had only looked at it with a curious smile and handed it back. Then he had said, "I have my own code, Jaantony, and you must respect it. Thank you, but I think I will stay here." He delivered the statement with quiet dignity; beneath his white-blond hair, his eyes looked almost cheerful. Jaan told him to continue the watch from the guard tower, in case Bretan returned to Larteyn while they were dealing with Lorimaar, and Ruark consented to that.

"Arkin hates Kavalar wine," Gwen said wearily, to Jaan's suggestion.

"That is of no matter," Jaan replied. "This is a bonding between *kethi,* not a party. He should drink with us." He set down his wine glass and went up the ladder to the tower with easy grace.

When he returned an instant later, he was less graceful. He dropped the last meter and stood staring at them. "Ruark will not drink with us," he declared. "Ruark has hanged himself."

On that particular dawn, the eighth of their vigil, Dirk went walking.

He did not go into Larteyn itself. Instead he walked the city walls. They were three meters across, black stone covered over by thick slabs of glowstone, so there was no danger of falling. Dirk was alone on watch (Gwen had cut down Ruark's body, and afterward she had taken Jaan to bed), staring out on those walls with his laser uselessly in hand and his binoculars around his neck, when the first of the yellow suns came up and the fires of night began to fade. The urge had come upon him suddenly. Bretan Braith would not be coming back to the city, he knew; the watch was a useless formality now. He left his rifle leaning against the wall, next to the window, as he dressed warmly and went outside.

He walked a long way. Other guard towers, much like their own, stood at regular intervals. He passed six of them, and estimated the distance from tower to tower to be roughly a third of a kilometer. Every tower had its gargoyle, and none of the gargoyles were quite alike, he noticed. Now, after everything, he recognized them. The demons of Kavalar myth, grotesque mythologized versions of dactyloids and Hruun and *githyanki* soulsucks. All real, in a sense. Somewhere among the stars, each of those races still lived.

The stars. Dirk paused and looked up. The Helleye had begun to edge above the horizon; most of the stars were gone already. He saw only one, very faint, a tiny red pinpoint framed by wisps of gray clouds. Even as he watched it vanished. High Kavalaan's star, he thought. Garse Janacek had shown it to him, a beacon for his run.

There were too few stars out here anyway. These were no places for men to live, these worlds like Worlorn and High Kavalaan and Darkdawn, these

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outworlds. The Great Black Sea was too close on one hand, and the Tempter's Veil screened off most of the galaxy, and the skies were bleak and empty. A sky ought to have stars.

A man ought to have a code, too. A friend, a *teyn,* a cause; something beyond himself.

Dirk walked to the outer edge of the walls and stood staring down. It was a long *long* drop. The first time he had sailed over the wall, on a sky-scoot, he'd lost his balance just from looking at it. As he stood and looked he took out his whisperjewel. He rubbed it between thumb and forefinger, as if it were a good luck charm. *Jenny,* he thought. Where had she gone? Even the jewel did not summon her back to him.

Footsteps sounded nearby, then a voice. "Honor to your holdfast, honor to your *teyn.*"

Dirk turned, the whisperjewel still in his hand. An old man was standing next to him. Tall as Jaan and old as poor dead Chell. He was massive and leonine; a head of wild snow-white hair that blended into an equally stormy beard to form one magnificent mane. Yet his face was tired and faded, as if he had worn it a few centuries too long. Only his eyes stood out—intensely, insanely blue eyes, eyes like Garse Janacek once had, burning with icy fevers beneath his bushy brows.

"I have no holdfast," Dirk said, "and I have no *teyn.*"

"I'm sorry," the man said. "An offworlder, eh?"

Dirk bowed.

The old man chuckled. "Well, you haunt the wrong city then, ghost."

"Ghost?"

"A ghost of the Festival," the old man said. "What else could you be? This is Worlorn, and the living men have all gone home." He was wearing a black woolen cape with huge pockets, over garments of faded blue. A heavy disc of stainless steel hung just beneath his beard, suspended on a leather thong. When he took his hands from the pockets of his cape, Dirk saw that one of his fingers was missing. And more. He wore no bracelets.

"You have no *teyn,*" Dirk said.

The old man grumbled. "Of course I had a *teyn,* ghost. I was a poet, not a priest. What sort of a question is that? Beware. I might take insult."

"You wear no fire-and-iron," Dirk pointed out.

"Truth enough, yet what of it? Ghosts need no jewelry. My *teyn* is thirty years dead, haunting some holdfast back in Redsteel, I imagine, and I'm here haunting Worlorn. Well, only Larteyn, if truth be known. Haunting an entire planet would be rather exhausting."

"Oh," Dirk said, smiling. "Then you're a ghost too?"

"Well, yes," the old man replied. "Here I stand, talking with you for lack of a good chain to rattle. What do you think I am?"

"I think," Dirk said, "I think you just might be Kirak Redsteel Cavis."

"Kirak Redsteel Cavis," the old man repeated, in a gruff singsong manner. "I know him. A ghost if there ever was one. His particular fate is to haunt the corpse of Kavalar poetry. He goes about at night moaning, and reciting lines from the laments of Jamis-Lion Taal and some of the better sonnets of Erik high-Ironjade Devlin. During the full moon he sings

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Braith battle chanties and sometimes the old cannibal dirge from the Deep Coal Dwellings. A ghost, in truth, and a most pathetic one. When he especially wants to torment one of his victims, he recites some of his own verse. I assure you that once you have heard Kirak Redsteel read, you *pray* for rattling chains."

"Yes?" Dirk said. "I don't see why being a poet is quite so ghostly, in and of itself . . ."

"Kirak Redsteel writes Old Kavalar poetry," the man said with a frown. "And *that* is enough. It is a dying language. So who will read what he writes? In his own holdfast, men grow up speaking only standard star-talk. Perhaps they will translate his poetry, but it is really hardly worth the effort, you know. In translation it does not rhyme, and the meter limps along like a broken-backed mockman. *None* of it is any good in translation, not a bit. The rattling cadences of Galen Glowstone, the sweet hymns of Laaris-Blind high-Kenn, all those dreary little Shanagates exalting the fire-and-iron, even the songs of the *eyn-kethi*, those hardly count as poetry at all. All dead, every bit of it, surviving only in Kirak Redsteel. Yes, the man is a ghost. Why else did he come to Worlorn? This is a world for ghosts." The old man tugged at his beard and regarded Dirk. "You are the ghost of some tourist, I would venture. No doubt you got lost while looking for a bathroom, and you have been wandering ever since."

"No," Dirk said, "no, I was looking for something else." He smiled and held up his whisperjewel.

The old man studied it, squinting his hard blue eyes while the cold wind flapped his cape. "Whatever it is, it is probably dead," he said. From far below them a sound came drifting up; the faint, far-off wail of a banshee. Dirk's head snapped around, and he looked to see where the sound had come from. There was nothing, nothing; only the two of them standing on the wall, and the wind pulling at them, and the Helleye high in a twilight sky. No banshee. The time for banshees had passed here. They were all extinct.

"Dead?" Dirk said.

"Worlorn is full of dead things," the old man said, "and people looking for dead things, and ghosts." He mumbled something in Old Kavalar, something Dirk did not quite catch, and he began to move off slowly.

Dirk watched him go. He glanced toward the distant horizon, obscured by a bank of blue-gray clouds. Somewhere in that direction was the spacefield, and—he was certain—Bretan Braith. "Ah, Jenny," he said, talking to the whisperjewel. He flicked it out away from him, as a boy might skip a stone, and it went far and far before it began to fall. He thought for moment of Gwen and Jaan, and for several moments of Garse.

Then he turned back to the old man, and called out after his retreating figure. "Ghost!" he shouted. "Wait. A favor for me, one ghost to another!"

The old man stopped.

EPILOGUE

It was a flat grassy place in the center of the Common, not very far from the spacefield. Once, in the days of the Festival, games had been held there,

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and athletes from eleven of the fourteen outworlds had competed for crowns of crystalline iron.

Dirk and Kirak Redsteel were there long before the appointed time, waiting.

When the hour drew near, Dirk began to worry. He needn't have. The aircar with the snarling wolf's-head canopy appeared in the sky just as predicted, swept by once with its pulse tubes shrieking, a low pass to make sure that they were really there, and then came down for a landing.

Bretan Braith walked toward them over the dead brown grass, his black boots trampling a host of faded flowers. It was nearly dusk. His eye was beginning to glow.

"I was told the truth, then," Bretan said to Dirk, with a touch of wonder in his rasping voice, the same voice that Dirk had heard so often in his nightmares, a voice several octaves too low and far too twisted for one as slim and straight as Bretan. "You are really here." The Braith stood several meters away, looking at them, infinitely pure, dressed in white dueling finery with a purple wolf-mask embroidered above his heart. His black belt carried two sidearms; a laser on his left side and a massive machine-pistol of blue-gray metal heavy on his right. His iron armlet was empty of glowstones. "I did not believe the ancient Redsteel, if truth be known," he was saying. "Yet I thought—this place is so close, a check will do no harm, I can return to the port quickly enough should it prove a lie."

Kirak Redsteel got down on his knees and began to chalk a square out in the grass.

"You presume that I will honor you in duel," Bretan said. "I have no cause to do so." He moved his right hand and suddenly Dirk was facing the barrel of his machine-pistol. "Why should I not kill you? Here and now?"

Dirk shrugged. "Kill me if you like," he said, "but answer some questions first."

Bretan stared, and said nothing.

"If I had come to you in Challenge," Dirk said, "if I had come down into the basement, as you wanted—would you have dueled me then? Or killed me for a mockman?"

Bretan slid his weapon back into its holster. "I would have dueled you. In Larteyn, in Challenge, here; it makes no difference. I would have dueled you. I do not believe in mockmen, t'Larien. I have never believed in mockmen. Only in Chell, who wore my bond and somehow did not care about my face."

"Yes," Dirk said. Kirak Redsteel had the death-square half complete. Dirk glanced up at the sky and wondered how much time was left. "And one other thing, Bretan Braith. How did you know to look for us in Challenge, in that one city out of all the others?"

Bretan shrugged his awkward shrug. "The Kimdissi told me, for a price. All Kimdissi can be bought. He had planted a tracer in a coat he gave you. I believe he used such tracers in his work."

"What was the price?" Dirk asked. Three sides of the square were drawn, white lines on the grass.

"I gave my honor-bond that I would do no harm to Gwen Delvano, and would protect her against all the others." The last rays of sunlight were

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fading; the tailing yellow sun had joined the others below the mountains. "Now," Bretan continued, "I have a question for you, t'Larien. Why have you come to me?"

Dirk smiled. "Because I like you, Bretan Braith. You burned down Kryne Lamiya, didn't you?"

"In truth," Bretan said. "I hoped to burn you as well, and Jaantony high-Ironjade, the outbonder. Does he still live?"

Dirk did not answer that question.

Kirak Redsteel rose and brushed the chalk from his hands, the square complete. He brought out the matched blades; straight sabers of Kavalar steel, with glowstones and jade set in the ornate pommels. Bretan chose one and tested it—it moved through the air with a song and a shriek—then stepped back, satisfied, to one corner of the square.

Dirk took the other blade and retreated in turn. Kirak Redsteel smiled at him. It will be easy, Dirk thought. He tried to remember the advice that Garse Ironjade had given him so long ago. Take one blow and give one, that's all, he said to himself. He was very frightened.

Bretan tossed his sidearms on the ground outside the death-square and moved the saber back and forth again, unlimbering his arm. Even across the seven meters that separated them, Dirk could see the twitch of his face.

Above Bretan's right shoulder, a star was rising. Blue-white and large and very close, creeping up the black velvet sky toward zenith. And beyond the zenith, Dirk thought, to Eshellin and ai-Emerel and the World of the Blackwine Ocean. He wished them luck.

Kirak Cavis stepped outside the death-square and said a word in Old Kavalar. Bretan started forward, moving gracefully, light on his feet, very white, his eye glowing.

Dirk grinned the way Garse would have grinned, tossed the hair back out of his eyes, and went to him. No starlight ran down his blade as he lifted it and reached out to touch Bretan's. The wind was blowing. It was very cold.

THE END

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TO BE SERIOUS:

Obviously, a science fiction writer—like any other writer—should take his work seriously. He should look at his basic idea to be sure that it isn't merely another routine idea, routinely handled. There has to be some freshness in it to justify writing it, and it's up to him to be sure he knows whether that's in the idea or the treatment. He should think out all the possibilities of his idea, work out an ending that is satisfactory, supply it with characters that suit the story, and tell it in the best manner he knows.

But that doesn't mean he has to take himself and his writing *seriously!* He doesn't have to and he shouldn't consider it necessary to put on paper every step of his inner soul-searching. He shouldn't worry about making sure the reader knows every damned minor detail of his background, his characters, or his theme. True, he should know all those details ideally; but a lot of them have little importance to the story. It really doesn't usually matter that our hero's mother didn't like his first girl friend or served pancakes instead of waffles for his graduation-day breakfast—unless somehow that is significant to the story development. Good fiction is usually produced by a writer who knows ten times as much about his story as he puts on paper. This doesn't mean he should ever skimp on useful details—but he should know where to draw the limit.

Once upon a time, I had to write a certain type of story about robots. Before I got around to putting 7000 words on paper, I had to know how those robots got to be superior to man—a fact which was never to be stated, but was to affect the relationship between men and robots. It took me about 60,000 words of "history" to get that noted down to my satisfaction. If I'd added all that to the story, I'd have had a novel—a serious, detailed novel that would have bored every reader who picked it up.

I suppose there is a place for any type of serious discussion. There are essays, articles, fact books, political books, etc. There may even be room for fiction that is *serious*; the psychological novel supposedly requires some such treatment, though I'm not ready to concede that any novelist—or psychologist—has sufficient insight into the workings of human thought and action to justify a deadly serious approach.

Maybe the body of science fiction, taken as a whole, has some serious purpose or use; I suspect it may have and that it helps to develop attitudes

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that prepare the readers to face a changing future. But I doubt that any single novel is or should be considered to be seriously purposeful. It's meant to be read, not studied. (Of course, there are some readers who've been so conditioned by schools that they can't read, but only study. However, they've usually also been conditioned to a different type of reading matter, if any.)

To me, a good science fiction novel depends upon good story telling, not upon its seriousness. In fact, I consider that in all fiction the story is the message.

There are those who disagree. But from the sales figures I see, they are in the minority. Maybe they're a superior minority, justified in looking down on my inability to reach their heights. But since most writers I know seem to like to make money, I still say that writers shouldn't take their product too seriously.

For serious ideas, I still prefer my calculator to any book of fiction that has ever been written. When I turn to science fiction, I want to be entertained.

A writer who entertained and pleased me with his first book, *The Warriors of Dawn*, was M. A. Foster. In it, he had a *ler* girl—a female of a race men had bred from their own germ plasm, but with interesting changes. And there was a nicely developed plot that gave her and a normal man a chance to grow to understanding through their differences and to do something important together. The book had its faults, but the idea was good and the handling set it above most first novels. I had great hopes for Foster.

Now he has a new book—**The Gameplayers of Zan** (DAW Books, 448 pp., $1.95). It's a very long novel, a bargain in words per cent; it's actually a good deal longer than the number of pages might suggest. And it's also about the race that man created—not really supermen, but supposedly quite different, physically and mentally, from the normal stock.

But this time, Foster seems to have decided that these make-believe people (as all fictional races other than our own must be make-believe) are a subject deserving of serious and detailed study.

So he has gone back in time from his spacefaring *ler* girl of the first book. He is determined to show us how and why and when and where her people became separated from our people. And rather obviously, he's *serious* about his creation.

There is a story in the novel. Briefly, a ler girl is caught destroying some human implements. She's put in an isolation box, where she deliberately induces a total loss of memory—a thing ler can do. That frustrates the humans who want to discover her purpose. Now we go to the ler reservation. There the ler have been crowded onto a small section of Earth's teeming surface, and have developed a somewhat sylvan, agricultural society. Very functional in a nontechnical

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way. But a few families or clans spend all their time at a seemingly nonfunctional game which involves a complex "computer" technology. (The game is given considerable coverage.)

Anyhow, Morlenden is given the task of finding the lost ler girl, which he does with considerable help from his "mate". (The ler marriage or mating customs are also given in great detail. Perhaps a careful study of the text will make it all clear, but it remains somewhat confused on casual reading.) And after that, we gradually discover the fact that the ler have plans—which involve the game skills—to escape from their entrapment by the humans, and things get more complicated.

The story, however, seems to matter less than the details behind the story. We get a lot of hints of the ler language—a lot less fascinating than Elvish, to my mind. We are repeatedly told that the ler figure to the base 14; and since there's no logic behind such a choice (12 works out better), none is given. We also get something called Multispeech, which can communicate a great deal more than any normal speech; in fact, it can even communicate pictures, commands, and almost anything else.

Now there I find hints of Robert Heinlein's advanced language in *Gulf*. But where Heinlein used his language as useful background material, Foster makes it serve highly important developments in the plot, which could hardly happen without it. He seems to take it seriously.

It won't work, of course. The bandwidth of what the ear can hear is only 20,000 cycles wide, at most. That limits the number of bits of information that can be conveyed in any given second. The visual spectrum has a bandwidth in megacycles, and it simply cannot be carried by the audio spectrum. Even the relatively low-resolution of color television takes about 200 times as great a bandwidth as that encompassed by human hearing.

Also, all the details of the ler doings seem to be designed to show their basic superiority to the humans around them. But when analyzed, except for the games, their world is a very human one. The trick of making the ler better is done by making the humans worse, giving them inferior motives, and putting them in a dystopia of technology. In fact, a careful reading of the plot, as isolated from the trimmings, indicates the ler have generally behaved like idiots.

The superior and talented ler girl who gave her memory to save her people didn't have any business going on her original trip to destroy human artifacts. There was a 99 percent chance those artifacts wouldn't be used, if she let them alone; and once she destroyed them, humans naturally rebuilt them and discovered what she'd tried to hide. Anyhow, the big secret was about ready to be revealed and used—and was used, after humans discovered it. The effort to get her back was a total waste, and also called far too much attention to what

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should not have been revealed. The conflict between that ler girl and another was something that any reasonable society would have avoided by the simple expedient of letting the more capable one have the job. Another significant message that the ler girl had to give—and about which much bother was made in an effort to discover it—was known to others all along, as shown in Chapter 19.

Foster also plays rather fast and loose with the reader in a few instances. After carefully showing that the total-forgetting process was irreversible, he suddenly has a "forgetty" snap out of amnesia and deliver the supposedly important message!

Obviously, the details here are more important to Foster than the story. He has become fascinated with his ler, he has constructed all kinds of background for them—good as well as bad, because some of it is interesting—and has gotten so seriously involved in all this background material that his story has become almost incidental.

There is quite a bit of good in the novel, despite the above quick skimming of faults. Foster can write well, when not overburdened with his hobby, and some of the characters are interesting. If you're willing to accept a slow pace of reading and let yourself be more fascinated by detail than by development, you may find the book worth the trouble. But I can't recommend it for casual entertainment nor for a satisfying novel. Next time, I hope Foster will stop taking mere details so seriously and will pay some attention to the story he has to tell.

Sometimes I suspect Poul Anderson is also beginning to take things a bit too seriously. His **Mirkheim** (Berkley-Putnam, 218 pp., $7.95) suggests it, at least.

In Anderson's case, the trouble seems to be that he is taking the business of writing a series of novels too seriously. This is the sixth novel of the Polesotechnic League, involving Nicholas Van Rijn and David Falkayne—plus the two alien friends and the computer that make up Falkayne's menage on shipboard. Apparently, this is supposed to be the end of the Polesotechnic League itself, though whether it's the end of Van Rijn et al, I don't know.

Anderson, as readers should know by now, always has a story to tell, and the basic idea here is perfectly adequate for a novel. There's a huge world—the title gives its name—which is rich in superheavy elements. Falkayne discovers this and turns it over to some of the poor colonies. (Umm, I can't quite fit that into the past behavior of Falkayne, nor can I quite see Van Rijn making no fuss when he discovers that rich booty has been given away without his getting his share! Anderson doesn't justify this, either.)

Anyhow, now the alien Baburites claim the planet, using a bunch of humans and a surprisingly sudden development of high technology to start a war against all others. Things are in

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a mess. Earth has a government which isn't strong enough; the Polesotechnic League of traders is another government; and Galactic Developments, a corporation, is acting almost as another government. Everything is either buried in bureaucracy or too limited in ability to rule. So, of course, it's up to Van Rijn to figure out the best answer he can and for David Falkayne to hire himself off on another dangerous mission.

Okay, that's fine. And everything develops from that.

But somehow, the developments throughout are too scattered. I can only guess that Anderson is too involved in the "serious" business of bringing this whole future history together in order to finish it as a totality.

Remember way back to *The War of the Wing Men* (to use the paperback title of the first Van Rijn story)? There was a Lady Sandra Tamarin in there who went off with Van Rijn at the end. She came from a planet referred to casually as Hermes. Well, this is a wrap-up of the series—so of course, we can't forget to tell what happened to her. Seems she had a son by Van Rijn named Eric, and that she became ruler of Hermes. So Hermes is in the story, and Eric and Sandra have fairly major roles.

And so are nearly all of the minor threads of the previous novels—at least by mention. I stopped noting them after a while. And I began to wish we had a focus on the story. It could have been Eric's story, or that of Falkayne, or that of Van Rijn. But no, we have to follow all of them. And to me, this diffusion has resulted in no really major figure around whom we can center our interest.

The mystery of how the Baburites have developed their space fleet—and why it is what it is—is a nice one, and well worked out. And there are other puzzles. But in one case, Anderson surprised me by doing something I consider very unfair to the reader; and Anderson doesn't do such things, to my memory. Around page 179, he withholds vital information from the reader; he has David Falkayne know—and then says, "He told her." But he doesn't tell the reader until we find out on page 192. False suspense, Poul! Not nice.

It's a fairly good novel despite its faults, and I think most readers will enjoy it. But when I compare it to the first Van Rijn story, I feel a bit sad. That story had tight focus from first word to last! I can't help wishing Anderson would get back to such a simple and effective way of telling his story.

However much I may feel that taking a story too seriously is bad, I can only admire a writer who *examines* his idea with all the serious attention he can bring to it. **Inherit the Stars** by James P. Hogan (Del Rey Books, $1.50) is an example of what can be done by that method.

Briefly, the story involves an idea which is fairly old in its basic concept. Men find a corpse on the Moon—one

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clad in a spacesuit, and obviously fully human down to the DNA structure. But that well-preserved corpse must be at least hundreds of thousands of years old!

Explaining such a mystery in the past has always involved what I can only call considerable cheating on the part of writers. But Hogan does not cheat. He deals with every possible objection and detail. He doesn't overlook evolution, nor cop out by simply dragging in "parallel evolution", though he doesn't neglect that possibility—nor any other.

This is "hard science" fiction with a lovely vengeance, but done so well that almost no scientific background is needed to understand and enjoy it. The characters here are less important than the idea, but they are at least reasonable scientists, not caricatures; and one, who could have been made a villain, is given the benefit of being an honest scientist, however much he fights for his beliefs.

It's rare when a new writer comes up with a novel in this category that is both sound and fascinating. I enjoyed every word of it, from the excellent beginning to the end that really ties everything together. Highly recommended.

I'd also like to recommend **Barsoom** by Richard A. Lupoff (Mirage Press, 161 pp., $7.50.). This is a study of the Martian books of Burroughs, together with some thoughts about how they may reflect Edgar Rice Burroughs.

It's not a guide or a scholarly study, but rather a collection of related essays about the novels and the writer. For those who have read the books, it should serve to tie together many things that seem only minor incidents in the works. It should serve the purpose of good criticism, in that it adds to the value of the stories for one who has already read them.

It's also quite pleasant reading. I've read the exploits of John Carter on Mars until I sometimes think I could almost quote the stories from memory. Yet I enjoyed the reading of Lupoff's book throughout. Maybe that's because Lupoff doesn't seem to take either himself or his scholarship in the field too seriously. But he obviously did his homework before writing the book. ■

clarion SF writers' workshop

Once again the Clarion Sf-Writers' Workshop will be held at Michigan State University from July 2 to August 14, 1977. Participating professionals are: Robin Scott Wilson, Harlan Ellison, Algis J. Budrys, Peter S. Beagle, Damon Knight and Kate Wilhelm. For further information on registration and costs write: Dr. R. Glenn Wright, Professor of English, Justin Morrill College, Michigan State U., East Lansing MI 48824.

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BRASS TACKS

Dear Mr. Bova:

Attempting to define science fiction has been a popular exercise almost since the genre's origins fifty years ago. The major obstacle has been making the definition encompass all stories which have been traditionally considered science fiction. No definition has been totally successful. For as many accepted works which fit it, there were always important exceptions which rendered [it] invalid.

While this problem is of no intrinsic importance to the well-being of science fiction, it is a gnawing irregularity which seems capable of being resolved. Being a mathematician, I relish the challenge of an unsolved problem. After working seriously on this problem for some time, I believe I have succeeded in defining science fiction axiomatically.

Life in this universe is governed by a strict set of axioms—or laws, if you prefer—which describe all conditions of our existence. They range from physical (scientific) laws to sociological, philosophical and psychological laws. Historical events which had a major effect on civilization can be considered inviolate laws.

I define a non-science fiction story as any work which operates entirely within the framework of accepted axioms. *The Old Man And The Sea*, for example, does not challenge any accepted axioms. *Gone With The Wind* may conflict with certain historical truths during the Civil War, but they were insignificant events which did not affect the outcome of that war or, in any war, affect us. Hence, non-sf.

A science fiction story is one which accepts the established axioms but requires the assumption of one or more fictitious axioms. Any story which is set on a future Earth automatically assumes such axioms and hence qualifies as science fiction. The same for stories set on alien worlds.

The number of additional axioms required, and their importance to the story, could be considered a classification system for how science fictional a story actually is. A traditional western which happens to take place on planet Ergo rather than in Dodge City would require several minor axioms (perhaps "Human life could exist on an alien planet" or "The American West circa 1880 has an analog in a distant solar system"). This would be a far cry from *Babel-17* which requires several major axioms. Hence the former is much less science fictional than the latter.

Fantasy could be defined similarly. A fantasy story *replaces* one or more accepted axioms by alternate ones. Any story which accepts the existence of magic certainly replaces physical laws. Anybody who does not believe in the possibility of time travel (as Larry Niven does not) would consider any time travel story as fantasy.

What are the flaws in this definition? It does not exclude any traditional science fiction stories from the genre but only reduces several to the status of being considered less-sf than

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previously. If that be a weakness, surely it is of the story rather than of the definition.

The only problem I can find is that the definition shifts several traditional science fiction stories to fantasy, and vice versa. Philip K. Dick's *The Man In The High Castle* depends on one major axiom—"World War II was won by the Allies"—being replaced by "World War II was won by the Axis". Since this is purely a replacement, that novel is actually fantasy. Norman Spinrad's *The Iron Dream* now qualifies as *both* sf and fantasy. It replaces "Hitler was furher of Nazi Germany" with "Hitler was a science fiction writer", while adding axioms concerning the existence of mutants.

What about books such as *Ragtime*? Several critics have considered this book fantasy since it plays with events in the lives of famous persons at the turn of the century. But how important were the actual events which Doctorow replaced with his fictitious events? I can find nothing important enough to be considered an inviolate law. A strict logician may claim that any historical event is inviolate. If that be so, then *Ragtime* may be accepted as fantasy, but still only peripherally.

While I have not made an exhaustive study of all science fiction and fantasy of the past half-century to find flaws in my definition, I feel confident it is a valid definition. I would be interested if anybody finds any stories which are badly misplaced by it, as well as any flaws in my logic.

ROBERT SABELLA

32 Cortright Rd.
Whippany, NJ 07981

How about it, readers? Is this a definition of SF that really works?

Dear Ben:

I read with interest your editorial in the December, 1976 issue. You chewed Senator Proxmire up a bit but really didn't give him the reaming he so richly deserves. I would make the following points: 1) Having majored in biology at a small college, I'm afraid that the "old boys" system is operative and is an albatross around the neck of the scientific community. Something should be done to correct it before the scientific community gets its collective mammary glands in a ringer over it. 2) Being in the political and governmental system myself, I would suggest that the scientific community fight Senator Proxmire and his ilk on their own terms. They are a vicious lot and are quick to back down when challenged. How about a "golden blunderbuss" of the year award from the scientific community for the most dunderheaded congressman as far as science is concerned. Senator Proxmire would be the first of course. 3) The scientific community, excluding the big interest groups like the A.M.A., had better get off its rear and start getting sympathetic representatives elected. It should even go so far as to actively support those who have scientific backgrounds. A good example is Senator John Glenn of Ohio. Maybe a reverse award should be given for the most enlightened congressman. 4) The N.S.F. should cover itself by giving explanations for the research projects it gets hit with and come out blasting with both barrels when Senator Proxmire and his ilk play their silly games. 5) I'm not sure

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I disagree with politicians getting involved in potentially dangerous research areas. Our system of government runs by the political process, and I would hate to see any group given a blank check and no control over its activities.

I firmly believe that once the politicians find that we won't take it lying down they will temper their rhetoric and start working with us, if for no other reason than to keep us off their backs.

JOSEPH R. MORENCY

Hamilton County OH 45238

Researchers are not very good at public relations, and the P.R. professionals who can understand scientific research are almost nonexistent. But there is a large and well-informed body of American citizens who know quite a bit about modern scientific research and technology, and who can be very articulate and even vociferous when they want to be: the science fiction audience. If you care about the future of science in the U.S., you should be telling your Congresspersons and Senators about it. Loudly and clearly!

Dear Ben,

I was so glad to read "Proxmired" and find that mine was not the only skin under which he seems to be positioning himself. His phenomonon is merely a symptom of a serious problem that runs much deeper, as are the implications of the views of others like him.

What the good Senator and untold millions of otherwise well-meaning people are failing to realize is that the only inexhaustible resource the United States possesses is technology. Our technology, which we derive from a heretofore long standing commitment to pure scientific research, is also our only exportable resource. (Understand here that our large food production is the result of our agricultural technology which derives from decades of pure scientific-agricultural research.)

The problem, and the irony of it all, is that while we hear so much about "putting our people back to work," and government plans to give everyone some sort of a job, our only resource and potentially greatest job provider is first knocked down and then kicked around. Congress and the multitudes view the space program as a waste and a burden. Funds for research and development are stingily allocated, often in protest. We find PhD physicists driving taxi cabs. Science and engineering, once a booming career choice, have suffered declining enrollments as the jobs have dried up. We cry about energy and wring our hands, but we won't put our engineers to work on it, rather we stifle them with antinuclear referendums.

In the last five years our technological superiority has held in spite of the government and the American people. The space program was a beautiful shot in a sick patient's arm. What we need most now is a booster shot, but we are not getting it, and that is the most "Golden Fleece" of all.

ROBERT M. STEINKE

914 Court Street

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Maybe there should be a Golden Egg award for the politicians who do the most to kill the goose that lays 'em!

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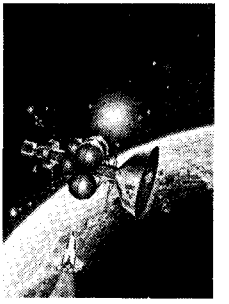

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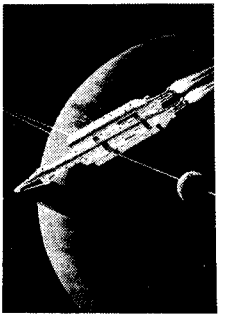

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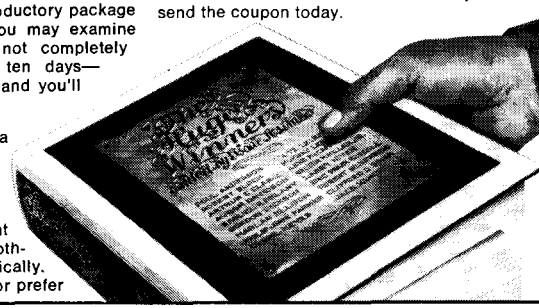

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